# The Builder.

VOL. XXXVII. No. 1884. SATURDAY, MARCH 13, 1879.


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### *More about Lighthouses.*

SKERRYVORE Lighthouse, off the Argyleshire coast, is the noblest example that we have presented to our readers of the masonry-built towers springing from a rock in the sea.* It was erected by Mr. Alan Stevenson on a small desolate rock, situated about eleven miles west-south-west of the island of Tyree, and fifty miles from the mainland of Scotland. The rock is exposed to the full fury of the North Atlantic, and is surrounded by an almost perpetual surf. "The talent and perseverance of the engineer," to use the language of Sir William Cubitt, in his address to the Institution of Civil Engineers, on January 8th, 1850, "enabled him, however, to complete, without loss of life or limb, great as were the difficulties he had to contend with, a structure far exceeding the dimensions of the famous Eddystone and Bell Rock Lighthouses, their relative heights being,—

The Eddystone..... 68 ft.
The Bell Rock ..... 100 ft.
The Skerryvore ..... 138 ft. 6 in.

The difficulties of the construction, the merits of the structure, and the system of lighting are so fully described in Mr. Stevenson's published account of it, that it is not necessary for me to do more than to point to it as one of the remarkable works of the present day of which we have justly reason to be proud." The work alluded to by Sir William Cubitt is called an "Account of the Skerryvore Lighthouse, with Notes on the Illumination of Lighthouses, by A. Stevenson," 4to., with plates. Edinburgh, 1848. The diameter of the tower at Skerryvore is 42 ft. at the base, and 16 ft. at the top, under the cornice. The total height to the top of the lantern is 158 ft., and the cubic contents of the masonry are 58,580 cubic feet. The light is revolving, and reaches its brightest state once in every minute. It is produced by the revolution of eight great annular lenses around a central lamp with four wicks, and belongs to the first order of dioptric lights in the system of Fresnel. It may be seen from the deck of a vessel at the distance of eighteen nautical miles. The entire cost of the lighthouse, including the purchase of the steam-vessel and the construction of a harbour at Hynish, for the reception of the small vessel which is now employed for the service of the light, was 86,977*l.*

Ardnamurchan Lighthouse, lighted in 1849, is remarkable for presenting somewhat of the arrangement of an ancient castle, the tower itself being the keep. It stands in an open court, surrounded on one side by a semicircular wall, between which and the base of the tower are store-rooms for fuel and dry stores. In the rear of the tower the court extends for 90 ft. by 35 ft., and at the side, opposite to the lighthouse, the dwelling-houses for the attendants, and store-houses form a building of some 75 ft. by 35 ft.; the area occupied being somewhat over 30 yards in each direction. There is an air-tube for the conveyance of signals from the lighthouse to the lighthouse-keepers' bedrooms. The tower has a circular plan, tapering from 21 ft. diameter above the flat roof of the store-rooms, to 16 ft. below the machicolated cornice. The height of the masonry, measured from the elevation given in Mr. Alan Stevenson's "Rudimentary Treatise on Lighthouses," is 100 ft. According to Mr. Alexander Finlay's description and list of the lighthouses of the world, it is a "stone tower, 118 ft. high," showing one fixed bright light. The height here given is probably that of the top of the lantern, as the reference to the sea level gives a height for the focal plane of the flame of 180 ft. above high water. The opportunity afforded of arranging the dwelling-rooms and store-rooms independently of the tower itself appears to have been admirably utilised in this lighthouse.

At the close of the year 1859, Mr. William Parkes, M.Inst.C.E., was instructed by the Board of Trade to proceed to Egypt, in order to make the preliminary surveys necessary for determining the best mode of lighting the course of vessels through the Red Sea. The result of his survey was a recommendation that lighthouses should be erected on three sites, namely,—1. Zafarana Point, on the Egyptian shore, fifty miles from Suez; 2. The Ushruffee Reef, on the western side of the navigable channel of the Straits of Jubal, 150 miles from Suez; and 3, The Dædalus Reef, in the centre of the Red Sea, 350 miles from Suez, and 180 miles from the entrance of the Gulf of Suez.

The shores of the Red Sea are in many parts fringed with coral reefs. These are in some places continuous; in others detached. They rise abruptly from great depths; so that no indication of their vicinity is to be obtained by means of soundings. For this reason the pilots and commanders of vessels that navigate the Red Sea are in the habit of taking as central a course as possible; the headlands and islands, which are, for the most part, visible by night as well as by day in that clear atmosphere, affording them the land-marks by which to steer. Mr. Parkes suggested the principle of placing lights on the intermediate points, where the continuity of the series of landmarks was broken, and thus converting what had been elements of danger into means of safety.

The most intricate part of the navigation of the Red Sea is that through the Straits of Jubal. The width there from shore to shore is from twenty-five to thirty-five miles; but the outlying islands and reefs reduce the navigable width to six miles. The length of this portion of the navigation is about thirty-five miles, between the high land of Zeitee at the northern end, and the high bold island of Shadwan at the southern end. Deep water is found near the shore at each of these points. But between them lies the dangerous reef of Ushruffee, to avoid which, previously to 1860, there was no guide whatever. And abreast of this reef, on the opposite side of the navigable channel, and at a distance of about six miles, lies the equally dangerous and treacherous Shab Ally Reef. By fixing a light on Ushruffee, which should be visible from either end of the Straits, a line of navigation is marked out which runs clear of all danger.

The Dædalus reef lies in the direct line of navigation. It is a little south of the parallel of 25° north latitude, and almost in the midst between the Arabian and the Egyptian shores. In order to avoid it, ships were accustomed to steer some twenty miles to the westward, thus coming so much nearer the danger of the shore. By fixing a light on this point, a clear safe course was marked out for some hundreds of miles. The question of the Zafarana point was a more simple one; merely requiring a light on the most projecting point of the mainland. The sites selected, and the designs prepared, by Mr. Parkes, were approved by the Egyptian Government, by the Board of Trade, and by the directors of the Peninsular and Oriental Steam Navigation Company. The ironwork was prepared by Messrs. Forrester & Co., of Liverpool, despatched from that port on the 28th October, 1860, and arrived at Alexandria on the 12th of the following November.

The two insular sites so far resembled each other that a somewhat similar structure was thought suitable in both cases, although as the Ushruffee light is intended to lead vessels past danger lying at twelve or fourteen miles distance, while the Dædalus light is intended only as a beacon to warn from that single reef, the height and illuminative power required for the former were considerably greater than those requisite for the latter lighthouse. It should be remarked that Mr. Parkes has incurred double toil on his own part, in order to save cost to the Government, as the simple expedient of building a twin pair of towers would probably have been at once adopted if recommended by him.

It has been remarked that the Dædalus reef lies nearly in the middle of the sea. It is, more accurately speaking, 45 miles from the Egyptian, and 60 miles from the Arabian, shore. It is described as a submerged island, with a flat top of an oval form, 1,200 yards long from north-west to south-east, and 450 yards in breadth. Its sides are vertical, or slightly overhanging, so that a common ship's lead may be dropped from the edge of the reef without finding bottom. The nearest soundings are between

* See p. 243, *ante*, and p. 257 for illustrations

700 and 800 fathoms, deepening as they approach the island. The range of tide is about 2 ft. at springs; and the surface of the coral rock is about 6 in. below low-water level.

The coral reefs of the Red Sea originate in branching corals, such as are to be seen in most museums. These growths intertwine and accumulate, rising from the bottom of the water. As the polyps which form them die, a calcareous deposit forms on the surface of the coral, and this becomes the foundation of a new growth. A complex skeleton thus rises towards the surface of the water; on nearing which the growth becomes horizontal instead of vertical, and the branches ultimately coalesce into a sort of platform, which attains the highest level that is always covered by the water. The surface is extremely hard, so as to turn the edge of an iron tool. It sometimes overhangs the stem which supports it. In some places on the Dædalus reef small apertures are found as much as 10 ft. from the edge, down through which the blue water may be seen extending to an unfathomable depth below. Sometimes branches of the coral are broken off before the platform is consolidated. It will be seen that the foundation thus offered is one of a somewhat ticklish nature. The extreme hardness of the rock prevents the ordinary modes of attachment. At the same time, from the irregularity of the growth it is by no means clear what would be the effect of throwing great weight on any portion of the surface.

There is, however, the advantage that the force of the sea is usually broken at some distance within the edge of the reef, so that the waves cannot fall with any volume on the base of a structure reared in the centre of an island of the area described. This counteracts the disadvantage of having to build on the surface of the reef without being able to sink a foundation beneath it.

In the case of the Dædalus, it was desirable to limit the bulk of material to be employed as closely as possible, as it all had to be brought a distance of 350 miles by ship from Suez, and there was no anchorage at the spot. It was, therefore, necessary to have a steamer capable of keeping close to the reef in any wind, which should provide accommodation for the workmen and store-room for the materials, until the work was in some degree advanced. A further consideration which the architect had to bear in mind was that the buildings should be so constructed as to be habitable in the intense heat of the locality.

Another point against which it was necessary to take precaution was the force of the wind. It is remarked by Mr. Parkes, to whose report on the construction of the Lighthouses we are indebted for the information, that the Red Sea is never visited by the hurricanes which are prevalent in many tropical regions; and that even such gales as in this country give a pressure of from 20 lb. to 25 lb. per foot are there unknown. The possibility of an outside pressure of 80 lb. per square foot was therefore taken as the basis of the calculations; and the action of the wind which was regarded as the most dangerous, was that which would have a tendency to twist the structure, or give it a rotatory motion. When the Ushruffee Lighthouse was erected in the yard of the builders at Liverpool (with the exception of the piles at the bottom and the lantern at top), the joints being only bolted together, it was exposed to two gales of wind, respectively of the registered power of 20·5 lb. and 24·3 lb. on the square foot, without suffering any strain, or showing undue vibration. Since erection in the Red Sea a heavy gale in 1862, and another in 1863, produced no bad effects.

Bearing in mind the fact, that while the height of the lantern of the Dædalus Lighthouse is at an elevation of 62 ft. above the level of the sea, that of the Ushruffee Light is 126 ft. above that level, the same general description applies to the two structures.

The basis of each is formed of two concentric circles of piles, the inner one of 15 ft. diameter, and the outer (in the larger lighthouse, to which we shall now continue to refer) of 39 ft. in diameter, at the level of the heads of the piles, which stretch out at a batter of one in twelve. Six piles form the inner, and six pairs of piles, the outer circles. The piles (or more properly legs, for they are not driven into the coral) are of teak, 18 ft. long, and 18 in. diameter. They rest on the surface of the rock, and are connected by transverse cills at the height of 4 ft. from the same, being there embedded in a mass of concrete, 5 ft. thick, and 47 ft. in diameter. This concrete is contained in a caisson of boiler plate, $\frac{3}{8}$ of an inch thick, set on edge, and bolted and riveted together. The heads of the piles are fitted with circular wrought iron collars, 18 in. deep, into which they are wedged with wedges of greenheart timber. To these collars is attached the open wrought iron framework that supports the lantern.

The framework of the superstructure consists of the repetition of three main parts, which may be called respectively standards, cills, and radiators. Each tier consists of twenty-four standards, twelve in each circle, connected at the top and bottom by cills, forming two concentric twelve-sided polygons; and the corresponding angles of the polygons are connected by the radiators. The standards are in lengths of 9 ft., and consist of a web-plate and two angle-irons riveted on it. The web-plates are 8$\frac{1}{2}$ in. by $\frac{1}{2}$ in. for the lower tiers; 7 in. by $\frac{1}{2}$ in. for the middle tiers; and 5$\frac{1}{2}$ in. by $\frac{1}{2}$ in. for the upper tiers. The angle-irons are of proportionate sizes. They project at top and bottom beyond the web-plate, so that when one standard stands upon another there is a space left between the angle-irons through which the end of the radiator passes. Joint plates on each side of the web are riveted to the head of one standard, the foot of another, and the radiator between; forming a very stiff connexion of the whole. Where there are no floors the radiators consist of $\frac{1}{4}$-inch plates, 7$\frac{1}{2}$, 6$\frac{1}{2}$, and 5$\frac{1}{2}$ in. deep respectively, at increasing heights. Where there are floors, angle-irons are riveted on to the top and bottom of the radiators, which then serve as girders. The cills are riveted to the angle irons of the standards, and to one another, through the joint-plates and webs of the standard by means of small knee-pieces of angle iron. The system of framing is carried up to the top.

With the exception of a few of the parts near the bottom, no separate piece of iron used in this framework weighs more than 4 cwt.; so that the whole could be carried by two or three strong men from place to place, and lifted by self-acting tackle. It should also be remarked that with the exception of the angle-irons of the standards, which had to be opened out from the square to the bevil of the angle of the polygon, none of the main parts had to be heated for fitting.

The floors are five in number, each composed of $\frac{1}{4}$-inch iron plates, resting on the lower flanges of the cills, and covered with 6 in. of concrete. Additional support is given (except in the case of the lowest floor) by two wrought-iron beams riveted to the standards under them. From the lowest floor is suspended a hemispherical water-tank, capable of holding 1,500 gallons of water.

The floors of the galleries are formed of open cast-iron gratings, which rest on the cills and radiators, and permit a current of air to circulate freely. In the Ushruffee tower there are three rooms arranged at the base of the structure and one immediately below the lantern, six intermediate floors being open. In the Dædalus Lighthouse the whole elevation of the framework is connected with four apartments.

The sides of the rooms are formed of corrugated iron $\frac{1}{8}$ in. thick, riveted to the standards and cills. The distance between the outer and inner standards near the bottom, in the more lofty tower, being unnecessarily great for the width of the galleries, an intermediate circle of T-iron standards and cills, similar to the main cills, but lighter in proportion, is inserted. The spaces which occupy the short sides of the polygon are completely filled in with corrugated iron; and those which occupy the long sides are so filled to a height of 4 ft. from the gratings, the top being finished by a handrail of teak.

The upper of the three rooms at the lower part of the Ushruffee tower is covered with two wrought-iron roofs, the lower one covering the room only, and the upper one, at a distance of 1 ft. in height, covering also the external gallery. Each has an aperture in the top, covered by a detached cone.

The sides of the watch-room, at the upper part of the framework, are enclosed in a manner similar to that of the rooms below, except that the gallery occupies the whole space between the inner and outer circles. The inner circle is carried up 7 ft. above the top of the watch-room, and is fitted with the usual details of a lantern pedestal, with some modifications peculiar to the present structure. The two circles are connected by a ring of cast-iron plates, forming a gallery round the pedestal of the lantern. The gallery is furnished with a projecting cornice of cast-iron plates, bolted on to the top cill of the outer circle, and the space between it and the sides of the lantern pedestal is filled with concrete. A railing is carried round the gallery, supported on cast-iron posts bedded in the concrete.

As an additional precaution against any twisting action from the force of the wind, two tiers of radiating diagonal ties, 1$\frac{1}{4}$ in. in diameter, were introduced, passing from the upper ends of the outer standards to the radiators immediately in front of the corresponding inner standards. In the Dædalus tower, as the lantern is smaller, arrangements were necessary for reducing the diameter of the polygon above the watch-room. This is done by placing in the watch-room standards or circles of cast-iron coved plates.

The lanterns and light apparatus were prepared by Messrs. Wilkins & Co.; the optical portion being manufactured by Messrs. Chance & Co. Zafarana is a fixed light of the first order. Ushruffee, a revolving light of the first order; and the Dædalus, a fixed light of the second order. The improvements introduced by Messrs. Chance into the lenticular apparatus are stated by Mr. Parkes to be so valuable as to be worthy of a special and detailed notice. Mr. Parkes further notes, with a very honest pride, that, within ten months from the date of his receiving his instructions, the sites were surveyed, at a distance of nearly 3,000 miles from home; the sites and designs were approved by the Egyptian Government, the British Government, and the Peninsular and Oriental Company; the contracts were executed, drawings and specifications prepared, the materials for two lighthouse towers and three lanterns, with their illuminating apparatus, manufactured, fitted, erected, taken down, and despatched to their destination.

It would occupy too much space to enter into the very interesting details of the erection of either the iron or the stone lighthouses, of which we have given the above notices. For the "perilous hair-breadth 'scapes" incurred in the erection of the Bell Rock Lighthouse, the reader should consult the Life of Mr. Robert Stevenson, to which we have before referred. We have also indicated the authority as to the execution of the Skerryvore light tower. For the Red Sea lighthouses, details will be found, in addition to those which we have cited, in vol. xxiii. of the Proceedings of the Institution of Civil Engineers. The cost of these two iron light towers is stated at about 55,000*l.* But of this sum as much as 23,000*l.* is put down as due to the remote and isolated position of the work. Taking the engineering expenses alone, exclusive of extra freight, hire of steamers, and similar costs, Mr. Parkes considers that the cost of the Ushruffee light will have been as nearly as possible 22,000*l.*, and that of the Dædalus light 10,000*l.*

In speaking of lighthouses erected, by English skill and enterprise, on the shores of the Red Sea, we must not omit a word of reference to those works of Roman engineers in past times, which, if the accounts can be relied on, far exceeded in grandeur the productions of our day. Of course, there is to be remembered the difference between an erection on shore and one on an isolated rock. But for approaching the latter sites we have, as compared with the Roman engineers, the incalculable advantage of steam power. In the fourth book of the "Wars of the Jews," cap. 10, sec. 5, Josephus states that the port of Alexandria is difficult of access, even when the sea is tranquil, by reason of its narrow mouth, and the hidden rocks near it. On the right hand, he proceeds, lies the island called Pharos, which supports a very large tower, which sends its light to a distance of 300 stadia. If we consider that the light was actually visible from the deck of a vessel thirty-four miles out at sea, Mr. Alan Stevenson calculates that the height of the tower must have been 550 ft.! The ground plan of this tower was hexagonal, the sides being alternately concave and convex. There were five decreasing stories; the fifth being circular, with a winding staircase to the top. The idea of the Tour de Corduan may have been taken from the account of this famous Pharos. Nor is the single tower of masonry without an example 2,000 years old. In the fifteenth book of his "Antiquities" (cap. 9, sec. 6) the same historian tells us of the harbour, situated between Dora and Joppa, which Herod the Great constructed in Phœnicia, of a size equal to that of the Piræus. Stones

of 50 ft. in length, 18 ft. in width, and 9 ft. in thickness, were laid for the foundation of the breakwater; and of special interest is the remark that the towers, one of which was named Drusus, in compliment to Cæsar, was solid to a height of 100 ft., and rose to a second 100 ft. as chambered buildings. At the present moment the remains of marble columns, covered by the waters of the Mediterranean, bear witness to the former magnificence of the city of Cæsarea, as described by Josephus.

## THE DETERMINING CAUSES OF ARCHITECTURAL STYLE.

THE remarks of Professor Barry, in his second lecture on architecture at the Royal Academy (*ante*, p. 171), are so thoroughly in harmony with our recently expressed opinions in the article on the study of comfort in architecture, as to suggest a natural sequel to that paper. The "transfer of the mission of the architect to the bricklayer and carpenter," to use the pointed language of the Professor, is, indeed, as fatal to the æsthetic as it is to the domestic character of house-building. And almost in our own words, Mr. Barry has referred to "the speculative builder, who, placing his work on another man's land, not unnaturally thought more of a speedy profit than of architectural excellence." It is a significant, and we trust a hopeful sign, that side by side with the page which contains the examination, in the Royal Academy lecture, of the opposition between Classic forms and the architecture of Northern Europe, should be found an investigation of the geometry of the former style of architecture, coupled with the admission that we must "dismiss from our minds all ideas of reviving Greek architecture in its original form."

Professor Barry has characterised, in a single sentence, the essential opposition existing between the Classical and the Mediæval spirit and mode of treatment. Of the first, he says, "We shall find in all its examples a spirit of horizontalism which opposes itself to the all-pervading verticality of our own Mediæval architecture." Nothing can be more just. We call renewed attention to the contrast drawn between the two noble churches of the Duomo at Florence and our own Abbey of Westminster. Our present effort, however, will be to trace the sources of these two distinct principles. When we are investigating the most splendid examples of the work of the architect, it is enough for us to trace the principles that have inspired or controlled the designs. But when we descend to the humbler level of domestic architecture we require to take a step further in advance. We want to know the causes that led to the original adoption of modern ideas of so different and even opposite a nature. And this is needful, for this reason. The adoption of a rule, without the reason of that rule is known, leads to the practice of the conventional, instead of to the search for the most appropriate. We may see illustrations of this truth wherever we turn. We see it in the absolute uniformity of the representations of the human figure in Egyptian art, to which Mr. Pennethorne refers, and to which some references will be found in our own pages. But it is, unfortunately, unnecessary to go so far afield for illustrations for the truth of this research. They are to be found in every street. They control "the bathos of Harley-street and Bloomsbury." They are to be found in the pillars, of massive stucco, or rather stuccoed brick, supporting heavy entablatures in the same noble and durable material, which recur in endless succession, street after street, in London; and which continually reproduce caricatures of Greek porticos, or even of Egyptian pylones, for the appropriate purpose of sheltering a visitor from a few drops of rain during the time which is consumed by a servant in walking from the basement of the house to answer a knock at the door.

Now in cases such as these, it is evident that we require a knowledge not only of principles of design, but of the primary motive which has led to the adoption of that principle. The builder may say, and has said,—we wish we could add that the architect has never done the same,—"the principle of Classic architecture is horizontalism. The trabeate structure is followed in the noblest buildings of ancient times. If, then, we wish to adorn our streets and ways we must be horizontal. We must respect the trabeate structure. The finest architects of past times built porticos round their temples. Our houses are too close together to build peristyles, in imitation of the Greeks; but we can at least place a little slice of a peristyle before every street door," which accordingly they proceed to do.

Now as long as any discussion on this point is relegated to that region of which people speak as "matter of taste," it is by no means easy to execute justice on the caricaturist of the Greek peristyle. We do not for a moment admit the extent that is claimed for what is called allowable difference of taste. There is one primary difference, and that is between good taste and bad taste. And we hold that those writers on æsthetic subjects best serve their country who most lucidly point out that this contrast exists in fact; and also give the best indications of the course to be followed by those who wish to know what good taste is. We admit, of course, a certain latitude, which may be called a personal equation, in taste. There is a latitude of this kind even in so indisputable a matter as astronomical observation. No two astronomers would observe the same phenomenon, through the same telescope, as occurring at precisely the same fraction of a second of time. The difference of the rate at which the nervous system of different individuals works is thus shown. In an observatory it is actually made matter of study, under the name of the personal equation. So it will ever be in art. But we must confine the licence within due limits. To a great extent it may be not only observed, but understood. Thus there is a tendency in human nature to admire something which it does not possess. This is blended and complicated with the tendency to value what one does possess. Sometimes one of these principles of action is most powerful, sometimes the other. Thus a dark-haired man is more likely to admire a flaxen-haired beauty than a brunette. The golden-haired Saxon admires the dark-eyed and dark-haired Norman woman. But this idea of contrast does not go so far as to lead him to admire the negress. On the other hand, the negress may passionately admire the golden-haired, white-skinned Teuton, as one of a superior order of beings. Another class of motives here comes into play. We cannot stop to pursue the analysis; but we must repeat that when people say anything is "matter of taste," the first point to decide is whether that means good taste or bad taste, educated or uneducated admiration; or whether it only means that range of personal difference in appreciation of what is in itself good, to which a certain latitude must always be accorded.

To return to Architecture. When the perpetrator of the box-portico tells you, in a word, that he likes it, and that his taste is as good as yours, it is not enough to go back only to the statement that the principle of Classic art is horizontal. That is so, as we before admitted. But when the builder, whom we now condemn, takes up this unquestionable truth, and appeals to it as his justification, how are we to meet him? "My portico," he says, "is a true bit of trabeate architecture. That is to say, it represents the trabeate. My entablatures are not beams, but they represent beams. What else did the entablatures of the Greek temples? What were their triglyphs? They were mere hieroglyphics or symbolic representations of the ends of wooden beams. They were executed in marble, because it was convenient at Athens to build in marble,—Pentelicus, I suppose, being handy; at all events, you cannot say that this work was realistic. It was conventional; so is mine. They built in marble; I build in brick and stucco. Marble was the material of Athens; brick and stucco form the material of London. The latter is not my fault, any more than the former was due to any merit on the part of Phidias, or Pheidias, as æsthetic-minded people call him. What have you to object? He imitated wood structures in his material; I do so in mine. Talk about taste! Who are you to object to an imitation of the Greek models to as thorough an extent as my materials or my purse will allow?"

It will, we think, be pretty clear that we have to go a step further to bring this gentleman to his bearings. It is not for a moment to be supposed that we are hinting that we find any defect in the lecture which gives occasion to our first remarks; far from it. The inquiry we have now started would have been there out of place. At the same time, it is one as to which the respected professor will, we do not doubt, fully agree with us. The step to be taken, then, is to inquire, "why did the Classic architect adopt the horizontal principle?" Was his motive one as appropriate to the latitude and the climate of London, as it was to those of Athens?

Side by side with this inquiry ranks the corresponding question, Why did the Northern builder adopt the perpendicular motive? Why did his columns cluster like bundles of saplings or of osier rods? Why did his arches spring into lofty lancets? Why did his spires, forms unknown to Greece or to Rome, pierce the heaven with their airy lances?

The reply to both questions is the same. The Classic artist on the one hand, the Teutonic builder on the other, wrought under the influence and limit of CLIMATE. We will not now attempt to trace the pedigree of architecture by a sort of structural Darwinism. We will not stop to inquire into the gulf which separates the arboreal home of the "nest-building ape" from the cyclopean walls of the forgotten builders of Tiryns. We will confine our observations to known and existing forms of building. And in these, we think it is undeniable that two main requisites have been respectively dominant. Each artist, in designing a structure that should be at once durable and convenient, had a special difficulty to contend with. One regarded the Southern summer, the other, the Northern winter. Both had to provide, and did provide, against rain. But the Teuton required a roof that should throw off the snow, when all was snug within. The Greek and the Italian required a space accessible to the cooling breeze, and sheltered from the beating rays of the sun. To them snow was almost unknown, except as lying on the peaks of the Apennines. We may say, and that perhaps with justice, that the idea of the one may be thought to be shadowed forth in the natural arcades of the forest, and that of the other in the vine-covered trellis of the garden. Certain it is that the principles adopted are in harmony with these two different modes of treatment. But, for ourselves, we rather lean to the idea that those necessities of structure which suggest to thousands of different minds the same method of encountering them, were the seeds of the architectural styles. The early habitations of both Northern and Southern people were, no doubt, extremely simple. But they followed, from the exigency of the case, different paths of development. Little by little, after centuries of education, one great workman arising to take up the mantle dropped by his predecessor, the work went on. Had we any pictorial records of the past, they would tell us how, by natural but ingenious steps, the original huts or cabins, which may have been very much alike on the shores of the Rhine and on those of the Ilyssus or the Meander, rose, and grew, and throve, till the Parthenon of the Acropolis, and the stately abbeys of Mediæval Europe, rose like magic exhalations from the earth.

Thus back we come to the true underplot of all excellence, and of all beauty,—fitness. We are not of those who hold that it is desirable to be bald, even though the use of hats and of umbrellas has greatly impaired the original importance of the hair as a shelter and protection to the head. We hold that the introduction of a narrow utilitarianism into architecture is as great a mistake as its exclusive adoption anywhere else. That there is a beauty in simple fitness is undeniable; but it may be a beauty that appeals more to the intelligence than to the eye. It requires education to admire. We have a signal instance in organic life, and notably in that which to the artist is the highest form of organic life,—the human figure. We are not about to lay down any teleological dogma, or to assert that it is not possible to imagine any thing more perfect than a beautiful man or woman. Art, indeed, from its earliest birth, has striven to body forth something more perfect. She has striven to clothe the human form with the plumage of the most beautiful birds, and to add to the lordship of earth the soaring powers of the eagle. Anatomy, indeed, rebukes art,—and declares that the winged Victory is no less a monster than the cherub or the sphinx. But, at all events, anatomy commands respect when she is confined to her own true limits; and when, instead of telling us what can or (in her opinon) cannot be, she tells us what is. In that respect her voice speaks with unhesitating accent as to the human skeleton. Take any individual bone, in a thoroughly well-formed individual, and you have a portion of structure perfectly adapted for its purpose, and thus structurally and mechani ally beautiful. It does not follow that it is beautiful to the eye. On the contrary, there is a wonderful economy

of beauty maintained in this respect. A very small number of what may be properly called bones, though they possess a structure and a function, as well as a mode of development, peculiar to themselves, are visible in the animal organisation. The shape, the texture, and the colour of those solid enamelled bones are such as to form, when perfect, one of the most beautiful features of a beautiful countenance. Nothing gives a greater personal charm than the possession of a really perfect set of teeth. To be seen is part of their object, and admirably has it been carried out. But the moment we turn our attention to any invisible bone the case is quite altered. No brilliant enamel is wasted on the finger bones or on the skull. On the contrary, a certain roughness, unpleasing to the eye, is useful for the surface of the hidden bones, as allowing a firm hold for the sinews or the muscles. Here, then, we see that there is a structural beauty which is not a beauty to the eye, but the reverse; and that the eye requires to be carefully educated by the study of anatomy before it can convey to the mind the impression that a rough, shapeless, at first sight disgusting, object is a very perfectly adapted portion of the wonderful machinery of organisation.

Fitness, then, though an essential of beauty, is not all that is essential to beauty. It is, of course, imaginable that there may be a structural reason for every form or tint of beauty that, constituted as the human organisation actually is, gives delight to the artist. Thus it may be said that the enamel of the teeth is useful for their preservation. No doubt such is the case. But, judging from the skeleton as a whole, it does not appear that a pure white is the colour most naturally or most generally given to bone. A black or brown enamel would, no doubt, be as useful as a preservative, and would seem, to our imperfect knowledge, to have been a more easy protection for the laboratory of nature to produce, than an enamel of either pearly, ivory, or creamy, white. The production of the latter is an homage rendered to beauty; and if it has also a special scientific advantage it is one that we have not yet discovered. So again with regard to what may be considered as almost the most wasteful lavishing of beauty in nature, the *striæ* of marine shells, or the exquisite colouring of that under-plumage of the wings of certain minute insects which it requires the microscope to render visible to man. There may be,—very likely is,—utility in all this. But what is certain is, that there is a glorious wealth and loving display of beauty. We prize it for its own sake, and only for its own sake. If wiser minds can do more, that fact does not interfere with the truth that the human mind, as actually constituted, admires and loves the beautiful, because it impresses it with an inexplicable and sympathetic admiration, love, and wonder.

And so we come back to our porticos, with the unfortunate admission that they possess neither the beauty which charms the eye, nor the beauty which appeals to the intelligence. They are not pictorial features, imposing from their mass or their arrangement, like the richly-carved balconies of Ghent, or some others of the old Flemish towns. They certainly are not adorned by the beauty of structure. If the cubic contents of the pillars be calculated, and if that of the entablature above (more massive, happily, in appearance than in reality) be added; and then the cost be compared with that at which an equally effective shelter could be given, the argument as to fitness will be at an end. We are not speaking with any especial spite against the villa portico. It is often a consistent part of an odious whole. What we have at heart is to show that if the producers of what Mr. Barry well calls the "bathos of Bloomsbury" raise their defence on the plea that they follow the horizontalism of Grecian architecture, they must be nonsuited on the ground that the climatic conditions which induced that horizontalism, and under which it was developed into structural forms of such exceeding beauty, do not exist on the clay of the London basin, or amid the sulphur-laden vapours that haunt the valley of the Thames.

Thus by tracing the predisposing or controlling influences under which the long series of Classic architects wrought out the idea of the horizontal or trabeate structures into forms of such perfect and abiding beauty, we at once arrive at a sound reason for forbidding any servile, partial, *mesquin* imitation. Into the question of imitation, pure and simple, on an appropriate scale, we do not now enter. That is a very large question, and it is one on which there is much to be said, and worthily said, on both sides. To the student who beholds for the first time the solemn grandeur of the temples of Pæstum, who is impressed, and even for a time overwhelmed, by the passionless beauty of that reflection of a forgotten worship and a lost civilisation, the idea of reproducing a Greek temple in Paris or in London is intolerable. But to another observer, who has long dwelt upon the noble proportions and highly-finished work of the Church of La Madeleine in Paris, it is very possible that quite the opposite opinion will occur. At all events, the erection of that building was a consistent outcome of the taste which sought to re-establish the grave republican order of ancient Rome in the gayest and most light-hearted city of Europe. A third observer, again, will pass from La Madeleine to La Sainte Chapelle, or even to Notre Dame or to St. Denis, with a sigh to think that Greek forms should ever be thought fit for a French church. These are not cases of ignorant difference of taste. There are primary intellectual dispositions which prompt one man to look in one direction and another in another, and amid this clash and divergence of opinion, that conflict of the two opposite principles of structure, to which we cannot at this moment more than hastily refer, has been wrought out, under conditions, and in accordance with rules, which it should be a chief study of the architectural student thoroughly to master. In the course of that natural conflict new forms have arisen. Where Genius has comprehended what Nature asked of Art, those forms have assumed a special beauty of their own. Where the philosophy of design has been unknown, and where nothing but a conventional imitation of fine models,—just so far as that imitation was convenient,—has guided the builder, every kind of bad taste has been rampant. As to this we shall have the consent of all ripe students of the subject. Nor do we suppose that there will be any hesitation in according to us an assent as to the essential importance of grasping, not only the leading ideas or principles of each distinct architectural style, but the conditions and influences which led to the development of these ideas. Thus shielded from the danger of servile or ignorant imitation, the student will be best able to draw their true lessons from the architectural monuments of the past. And thus he will be led,—if not at once to produce what we all desire,—works in the true style required for the country and for the age, yet to avoid those purposeless and unsuitable imitations, in the execution of which good work is thrown away, and bad work becomes tenfold more execrable.

## ROYAL ACADEMY LECTURES ON ARCHITECTURE.*

BY PROFESSOR EDWARD M. BARRY, R.A.

THIRD PERIOD OF RENAISSANCE.—PALLADIO AND VIGNOLA.

IN my first lecture, as in this, the last of the present series, architecture in process of revival is the theme; not that I would have students think of revivals only; but that I trust they may find in the past, encouragement for the present, and hope for the future.

In commencing my course I spoke first to you of the Gothic Revival of our own day, which seemed to claim from us a special attention, from the recent loss of its chief leader, and I have since sought to interest you in the older and rival movements, which made the Renaissance triumphant in Italy, and more or less successful elsewhere.

In both cases, we have found that causes deeper than mere æstheticism have been at work. It is, or should be, the privilege of the architect to be the exponent of the convictions of his time. In this way, his calling acquires a dignity exceeding that attaching to professions, which aim at giving a fleeting pleasure to the sense of beauty only.

The Renaissance was a revolt from Mediævalism. Our recent English Revival was, to a great extent, a return to it. I say, "to a great extent," for a complete surrender of modern convictions was impossible, and thus, as far as permanent results are concerned, the movement already appears to have dealt chiefly with externals.

The Italian school prided itself on referring back to the precedents of an antique and Pagan past. Our own revivalists have turned to the Middle Ages, and have claimed for their favourite types the exclusive denomination of "Christian architecture." The Italians turned backwards for artistic freedom, while we have seemed to desire to submit our revived practice more completely to the influence of authority. In both cases precedents have been appealed to, and precision of reproduction applauded.

The Renaissance movement, properly so called, ended with the skilful architects whose works we shall discuss this evening. We are, therefore, able to survey it as a whole, and note its successes and defects. Separated, as we are from it, by lapse of years, a calm discussion is possible of the qualities which obtained for the Renaissance no inconsiderable part of the suffrages of succeeding generations.

The Gothic revival is too near to us for treatment equally dispassionate. It still exhibits the scene of conflict, and the din of battle appears to be only temporarily hushed. The time for its complete history is not yet come, nor can we confidently prophesy its ultimate results.

No one had better claims than Sir Gilbert Scott to address us on "The Rise and Development of Mediæval Architecture," and his lectures on this subject, which have been published since his death, speak with the authority of a ripe experience and varied practice. We cannot, however, predict the future, nor can we be sure that we have seen the last of our revivals. The English movement has not yet run its course, but it has never acquired the undisputed pre-eminence enjoyed by the Renaissance in Italy. To the latter we will now return, and terminate our examination of the same, in its later developments.

We have already traced the progress of the restored taste for antique architecture in Italy up to the time of Bramante and Sansovino. This has been called the Golden Age of the movement; and if the latter be divided into three periods, we shall find it ranking as the second, or middle stage.

The first period was Transitional, a time of fusion, when the architecture was subordinated to the decoration. On all sides there were evidences of principles half accepted, or but partially carried out. The second period carried the revival of old forms a step further, and broke more decidedly with Gothic precedents. Its architects studied Roman principles of construction, as well as Roman types of design. The science which had erected the Pantheon and the baths of Caracalla was now invoked to assist the revived architecture of the day. Brunelleschi's dome at Florence was the first fruit of the process, which led to the triumph of Michelangelo at St. Peter's. Bramante and Sansovino applied Roman architecture to modern wants, with a success which, perhaps, has never since been exceeded. Not only did they adopt the columns, pilasters, and entablatures of the Roman orders, but they sought also in the details of their works to resuscitate the old Classic spirit. Their time has, therefore, been appropriately called the Roman Period of the Renaissance.

We may now pass onwards to notice the concluding phase of the Revival. Bramante did not live to perfect his plans for St. Peter's, and the completion of this great work by Michelangelo may be held to mark the time when the second period of Roman vigour was giving place to a more formal accuracy, and a precision which may be called pedantic. In the strong hands of Michelangelo, architecture might seem to scorn the restraint which was, however, soon to be imposed. His genius brooked no fetters, and although he declared in favour of Bramante's plans for St. Peter's, he would not suffer them to bind himself. Simplicity of general design, with a colossal largeness of detail, were the principles which suited the impatient nature of Michelangelo; and they are illustrated by his abandonment of Bramante's plan in favour of a Greek cross, and by the introduction of the huge order, with the consequent exaggeration of subsidiary details, which detract so greatly from the effect and apparent size of the building, as we now see it. The present nave is, as we all know, not a design of the great Florentine; but, although it has faults of its own, for which he is not responsible, the scale of the architecture was given by the work of Michelangelo, and the building is, to this extent, an illustration of his principles of architectural design.

It was probably a reaction against an

* h and last lecture. See p. 245, *ante*.

exaggeration, only tolerable, when directed by genius, which led to the colder and more tranquil designs of the later Renaissance. Architecture, which, at the revival of letters, had followed scholarship, still felt the same influence. The first burst of enthusiasm had been succeeded by knowledge; and knowledge was now giving rise to a critical pedantry. We have already seen that Alberti adopted even the old language as well as the ancient architecture, and addressed his friends in Latin. Correctness of taste was the aim of the architect, as it was of the poets and authors of the sixteenth century. The first was as anxious to show that his work was accurately in accordance with ancient precedent, as was the latter, to demonstrate the purity of the language he used. False quantities were as much condemned in the architecture as in the poetry of the day. A spirit of inquiry was abroad, and the effects were visible, not in art alone, but also in religion and manners. Abstract mysteries, which had been tacitly accepted, were now questioned; and the trustful spirit of olden days had given place to a disposition to touch, taste, and handle. When this process had been completed, and canons of taste in architecture established, no appeal could be allowed. The instinctive and undisciplined aspirations of the many were to be repressed by the Classical fastidiousness of the cultured few; who, on their part, were bound to be able to produce, when challenged, chapter and verse for their decisions.

New and severer rules now came into play, exuberance of decorative fancy must be repressed, and the question must always be, not "What should we like to do?" but "What did the Romans, or what would the Romans have done under similar circumstances?" The problem was,—that problem which has ever caused unhappiness and despair in the attempts to solve it,—to recall the past,—to ignore the present,—to bring back the dead to life.

Can we wonder if the later Renaissance architects failed at so hopeless a task? We are ourselves sure that architecture should be free from fetters such as these. Nevertheless, we too have our own revivals, and perhaps may even now be told, "*De te fabula narratur.*"

The application of the spirit pervading society at this time, to architectural design, was chiefly illustrated by the works of Palladio, of Vicenza. He gave, indeed, a name to the architecture which he used, and we have not ceased to speak of the Palladian style. Like most popular definitions, however, this term has come to be used with some inaccuracy, and much elasticity of meaning. When men say they like or dislike Palladian architecture, they do not generally mean to refer to the architectural forms which Palladio himself actually used, but rather to Italian architecture generally, which has come to be described by a term only applicable in reality to one phase of its development.

Palladio's school referred every detail to precedent, and considered that the limits of invention had been reached. They forgot that architecture had ever been progressive, and that the five orders of Classic times could not be permitted an absolute authority over all succeeding ages. Vitruvius had described the edifices of the Augustan age, and his writings were now eagerly studied as a very gospel of architecture. The proportions which he laid down, and the precepts which he inculcated, were to dictate to architects for all time the principles on which alone their art must properly be based.

Palladio's principal works are to be found at Vicenza, of which place he was a native. His best design was certainly the arcades of the Town-hall,—a building which, notwithstanding admitted defects, has a charming effect of proportion, and of light and shade. Mr. Fergusson speaks of this achievement of Palladio's as being the only instance of a Gothic edifice having been improved by subsequent additions in a different style of architecture. The Town-hall was one of Palladio's earliest designs, and is less liable to the charge of formality than other, and later works.

Vignola and Scamozzi are generally ranked with Palladio as members of the same school, and it may be remarked that the pedantry, of which it is accused, is more to be attributed to their followers than to those distinguished architects themselves. If we find defects as to this matter in the works of Palladio and his comrades, we may remember that, excepting in rare cases, they, at least, avoided the opposite errors of exaggeration, in which Michelangelo and his followers indulged. One of the exceptions is to be found in the Valmarina Palace by Palladio. Here there is a large order, running through two stories, and supporting nothing. The order is obviously a mere application of what is intended to be ornament, and the elevation would be better without it. The angles, moreover, are the weakest part of the design, whereas they should have been the strongest. In other buildings at Vicenza, by the same architect, there is greater purity of detail, and a general elegance of effect, and it is not often that a gigantic order like that at the Valmarina Palace, was indulged in.

A peculiarity of Palladio's designs is found in a weak treatment of the angles. This is especially noticeable in the example above named, and, in other instances, a single pilaster is placed at the angles, or even a three-quarter column, as at the Barbarano Palace. The effect of such a method is far from satisfactory. In Sansovino's library of St. Mark, the angles are marked and accentuated by doubling the numbers of the order, so that there is not only a three-quarter column, but also a pilaster, which emphasises the ends of the design. In Palladio's case, there is an order which is obviously placed against a wall, to which there is no necessary termination, and which indeed might be indefinitely continued. Notwithstanding such criticisms, however, Palladio's designs are usually well studied, and the fame which he obtained was chiefly owing to his eye for proportion, while the general distribution of the parts give a pleasing character to his buildings generally.

Like his contemporary Vignola, Palladio aimed at harmonising Roman ideas with those of his own day, domesticating, so to speak, the antique; while using it for very different purposes than those to which the Romans had applied the forms now adopted. It is scarcely fair to exclaim against this process, as being one of copying only; for Palladio's aim, like that of other revivalists, was to make the forms of ancient art his own, and by a process of adaptation evolve out of them a system of design, which should at least possess the merit of originality of treatment. Bearing in mind that absolute originality in architecture is out of the question, we cannot say that Palladio and his brilliant comrades were wrong, though opinions will, of course, vary as to the success which they obtained. If they had regarded the arbitrary proportions of the Classic orders with less reverence, their undoubted talents might have carried the Renaissance to a further and more successful development. This, unfortunately, was not the case, and the rules which were to achieve perfection served to stifle art.

Architecture cannot be satisfied with appeals to the learned only, and must appeal to the unlettered masses as well as to the educated minority. The qualities which will ensure success will not be found in a careful adherence to precedent alone, or in a rigid application of pedantic rules. The buildings of the post-Palladian school possessed these qualities, but they were incapable of exciting enthusiasm, and can at best be regarded as careful academic studies. As time went on, men spurned the fetters which were sought to be imposed upon them, and rushed into the excesses of exaggerated detail, which are known by the name of "Rococo." It is always thus with attempts to strain unduly the rules which bind the human intellect. Men will be free in art, as in the more stirring questions of religion, or politics, and repression will generally end in revolution. The Renaissance was nothing if it was not to be progressive, and the ultra-Classic formality which now reigned supreme, was the herald of decay. The earlier architects showed signs of originality; but after Palladio and his school, all was again a chaos, and further progress appeared to be abandoned. Why was this? We may perhaps learn from it a truth useful to ourselves, that no selection of a past style of art, and no mere careful reproduction of its details, will ultimately satisfy a society which has little in common with those, for whose needs such architecture was originally invented and used.

Vignola's greatest work was the noble Palace of Caprarola, near Rome, a building simple in plan, and so treated as to present a castellated, rather than a domestic, aspect. The design is graceful, with a double order, and a well-proportioned arcade to the entrance-front. The weakness of the angles, noticed in Palladio's designs, is here avoided. The plan is a pentagon, with a circular cour within and was evidently controlled by military considerations. Architects in those days were the chief builders of all necessary works, and had not yielded any part of their province to the engineer. In a former lecture reference was made to this subject, with reference to the castles of Mediæval times in France and England, and in the case of Coucy, we found, as you may perhaps remember, that, while the architect had constructed the building with such solidity as to be impregnable, he had likewise secured no inconsiderable amount of architectural character and even beauty. The varied outline of such works as Coucy is, in itself, pleasing, and the donjon keep, the machicolations and galleries, the turrets and gateways, all contributed to the architectural effect. The use of gunpowder brought about a revolution, and now that the whole question has passed into the hands of men of science only, our military structures, no less than our ironclad ships, have become miracles of ugliness.

It may be that this result was inevitable, but in some cases, especially those relating to civil works, the question may suggest itself, whether architects have been wise in leaving works which used to be theirs to others? Have they done well to allow their profession to be divided in favour of the engineer? When the history of this age is written, the latter will claim a distinguished record. He will tell of the scientific application of the powers of nature to the service of man,—of facilities given to all,—of the necessaries of life cheapened, and made available for millions. His works have been devised with a single-minded directness of aim, and the architect may perhaps ask himself why his own co-operation has not been made available? Could not these useful works have had some artistic grace? Can we admit that, in such cases, Truth and Beauty must necessarily be divorced? It may be that we have been dreaming of the Past, while the great living world has been waking, moving, acting. Mankind will thank those who show the way to unite the Necessary with the Artistic, and this should be the duty of the architect. In the meantime, if we ignore these needs, men will turn elsewhere, and will say of the engineers, that they, at any rate, have known what to do, and how to do it.

In Italy, the importance of engineering was beginning to assert itself during the Renaissance: but architects were still consulted about fortifications. Michelangelo was at one time engaged on the walls of Florence; and at Verona, the gateways designed by San Michele still remain. The latter architect devised here the fortifications of the city, and has been considered the inventor of the pentagonal bastion.

This is the form of the building at Caprarola, as to which Vignola evidently followed the rules for fortified places, laid down by San Michele. Nevertheless, as he was designing a palace, and not a fortress, he gave to the whole design an architectural character, rather than one exclusively appropriate to military engineering.

It is probable that there were good reasons for seeking to obtain a certain amount of defensive strength, for Italy was full at that time of soldiers of fortune, willing to sell their swords to the highest bidder. They wandered over the country in small bands, and, although insufficiently equipped for attempting a siege of any really strong place, made their name terrible to those who had no means of resistance. Against such adversaries, Caprarola possessed considerable powers of defence.

The building is a fine specimen of Vignola's talents, and, with a few additions, would be a grand architectural monument. The pentagonal form, however, is not agreeable, as the angles caused by it present an awkward appearance. The castellated treatment of the plan is, moreover, not adequately carried out in the external design. The elevation of each side of the pentagon is that of a palace fit to grace the streets of a city like Rome, and in the details the military character is altogether absent. The latter might have been preserved, and the place greatly strengthened, if the angles of the pentagon had been marked by towers, projecting so as to command the flanks. These towers might have been carried up, so as to break the long and monotonous line of the present roof, and in that case would have had a further practical use, as turrets of observation. If this had been done, and the central circular court covered by a domed roof, the building might have been rendered far more effective architecturally than it is at present. The idea of

half fortress, half palace, would have been more thoroughly developed, and the present somewhat insipid formality would have disappeared. With all drawbacks, however, Caprarola must be reckoned a dignified and stately work of architecture, and we may see by this instance, as well as by that of Coucy, that fortified buildings, in the hands of the architect, need not be ugly. Each was fitted to meet the existing circumstances of the time and country. Each was designed on the best military principles, as then understood; and each had a decided and striking architectural character.

Vignola was, as we may say, more Palladian than Palladio in his exact reference to ancient rules, as deduced from classical examples. His treatise on the five orders aims at the authority of a text-book, and is still, in that sense, deserving of study. He did not give the proportions of any actually existing details, but by a principle of selection, he sought perfection, so to speak, in the survival of the fittest, and thought to weld the whole together, into one harmonious system. He was invited by Philip II. of Spain to visit that country in order to superintend the erection of the Escurial, for which many designs had been obtained from various architects. He seems to have compiled from their suggestions a design of his own, which commanded the king's approval. He was unwilling, however, to give up Italy for Spain, and his age and other circumstances induced him to decline the royal invitation, so that his proposals were never carried out.

Vignola was then established in Rome, in high favour with the Pope, and on the death of Michel-Angelo became for a short time the architect of St. Peter's, in which capacity he designed and erected the two lateral cupolas of the building. His works rank on equal terms with those of Palladio; and, indeed, in elegance of detail may be held to surpass them. He disliked extravagance, and referred his art too much to system and rule; but he applied such rules with a taste and refinement which few have surpassed. He had no inconsiderable talent as a painter, particularly of perspective, and used to say that a study of the latter science had led him to adopt architecture as his profession. His inclination towards the Renaissance was determined, as was that of Brunelleschi, Bramante, and other leaders of the movement, by the study and careful measurement of the remains of Roman art in and about the imperial city.

Vignola visited France, and remained there about two years, which circumstance probably accounts for the tradition that he designed the Château de Chambord. This could scarcely, however, have been the case, as the building was commenced before the time of his visit, and certainly does not accord with his usual principles of design. It is possible that he may have advised the royal builder Francis I. during the progress of the building, and that from its semi-fortified arrangement of plan he may have been influenced in his subsequent designs for Caprarola. The elevation of the latter building, however, has nothing in common with Chambord.

The French architects were working out the Renaissance in a different spirit from that of Vignola and his Italian comrades. They had not the same wealth of ancient buildings of Classical architecture to appeal to for precedents, while around them were the evidences of the skill of the Gothic architects of the Middle Ages. In examining the design of Caprarola, I ventured to remark on the monotony of its sky-line, and to suggest how it could have been avoided. At Chambord we have the opposite extreme, with a multiplicity of circular and pyramidal roofs, and other details, which is confusing and even bewildering in variety of outline. In this building we have semi-Classic details, combined with a Gothic principle of general composition. It has none of the advantages of position enjoyed by Caprarola, which is seated on a hill surrounded by rocks, and with a natural amphitheatre about it. Chambord, in the midst of a flat and sandy plain, in uninteresting country, owes nothing to nature. Its picturesqueness is the work of the architect alone, and although the critical judgment refuses to be satisfied with the medley of forms which seem to have been thrown together in wanton exuberance, it is impossible not to feel interested in this most characteristic example of the French Renaissance.

The Château of Chambord recalls, in its curved wings and turrets, the defensive details which we noticed at Coucy, as being common in French military architecture. The projecting turrets with conical tops, so often to be met with in the great country-houses of France, had become meaningless as a provision for defence; but they were still cherished, not only as an architectural ornament, but as an outward sign of social importance. This is still the case, for to the present day a Frenchman of position thinks his château incomplete without the characteristic "*tourelles*," and the *nouveau riche* hastens to add them to the villa of the bourgeois. Apart from such interesting and picturesque relics of military architecture, Chambord and its kindred châteaux offer many suggestions to us in respect of civil architecture, particularly where a certain dignity is required, without sacrifice of domestic comfort. The style is more flexible than that of Palladio or Vignola, and adopting, as it does, the round arch, numerous and ample windows, both arched and square-headed openings, and a horizontal treatment generally, it seems to offer solutions of many difficulties in our modern architecture. No one, on the other hand, can accuse it of tameness or monotony, with its high roofs, dormers, turrets, arcades, and chimneys, such as are to be seen at Chambord or Chenonceaux.

Although the evidence of the design indisposes us to credit Vignola with much influence upon it, the statement may perhaps be more readily believed in respect of the palace at Fontainebleau. The effect of his counsel, here, is not indeed very apparent, and it was probably limited by the jealousy of foreigners, which existed at the French court, and in the nation. The general appearance of the design of Fontainebleau is, however, far more consistent with Vignola's architectural principles, than the quasi-Gothic picturesqueness of Chambord, although the details are not to be compared with those to be found in his best works, in Italy.

At the time of Vignola's death in 1573, Palladio was nearly at the end of his career; but their traditions were, for a time, upheld by Scamozzi, a young man then rising into fame. He, too, was a native of Vicenza, and devoted himself to architecture, from an admiration of the Palladian school in that city, and of the works of Sansovino at Venice. In accordance with the prevailing fashion, he sought to base the practice of his art on the writings and canons of Vitruvius, and then visited Rome to drink at the great fountain of inspiration of Classic art. Returning to the north, with his mind full of the records of Roman greatness, and his sketch-books crowded with measurements of temples, baths, and theatres, he settled in Venice, and took up the work of Sansovino and others. He continued the design of the Library round the south side of the Piazza of St. Mark, adding a third order, and altering the deep frieze and cornice of Sansovino. These were not improvements, and his work wants dignity and interest. The Cornaro Palace, commenced by Sansovino, is believed to have been finished by Scamozzi.

Like other architects of his time, he also turned his attention to military engineering, and laid out the fortress of Palma, near Friuli. San Michele's work at Verona appears to have determined the type of the architectural details, generally adopted for such structures. The latter architect used, as a matter of course, the forms of the Renaissance, and gave them a peculiarity of character, by the use of simple rustication. For the massive walls of fortifications, such a treatment sufficed; as in such cases delicate mouldings, and other such details, would have been out of place, and unnecessary; but for the gateways, the architects of the Renaissance adopted somewhat more elaborate designs.

In such structures, the orders could be employed, as in other buildings of the time, and an example of their use is to be seen at the Gateway of the Lido, at Venice, as well as in those at Verona. In those gateways, the attached columns and pilasters are apparently built up with rough stones, each forming a course of rustication, while the arches show every voussoir constructed in like manner. The order chosen is the Doric, with the cornice simplified, and the decoration of the architrave and frieze in some cases omitted. Such works were common in the time we are noticing, and from this cause, probably, arose the fondness of the later Renaissance architects for rustication, which was freely used by the Palladian school. It was employed by them, however, in subordination to the general effect, and, therefore, in a different manner from that of the older Florentine school, who had based their most characteristic designs, since the days of Brunelleschi, on rustication extending over the whole building, so as to allow little scope for other details. Examples of such a treatment are found in the Pitti, Riccardi, and Strozzi palaces. The latter building is, perhaps, the most characteristic of the semi-military, semi-domestic architecture of Florence.

Italy was, at this period, a collection of provinces rather than a single country, and its architecture had, therefore, many local peculiarities. The sumptuous splendour of the palaces at Venice finds but little counterpart in the austere and stately fortress-like buildings of Florence. The simple details, the bold rustication, the small windows, and the large area of unpierced and solid wall, give a gloomy, and almost forbidding aspect, to those latter half-fortified dwellings. The Palladian school usually rusticated portions of their buildings only, preferring such parts as seemed to require additional strength, as the ground or basement stories. Vignola did this at Caprarola, and he also carried up rusticated quoins, at the angles of the projections of the upper story.

This system of marking the courses has been generally adopted in revived Renaissance architecture in all countries. Wren used it at St. Paul's, and Inigo Jones at Whitehall, and the characteristic Water-gate of the latter in the Savoy is a pleasing specimen of the military type, similar to that adopted by San Michele. The Gothic architects, building with small stones, and relying on constructive forms, did not care to emphasise the various joints, or to maintain regularity of courses; but in Italy, the use, in Mediæval times, of voussoirs to the arches, of different colours, has an effect nearly related to a system of rustication; and a similar method was common in Byzantine and Eastern work. Of late years, it has been customary to condemn rustication, and it is no doubt liable to abuse. It has, however, an appropriateness in many situations, and may be used by an architect so as to give scale to his work, and to modify the monotonous effect of too much plain surface. An example of my meaning may be seen at Bridgewater House, particularly in the part facing the Green Park. The rustication of this front is applied to the ground-floor only, over the surface of the wall, and at the angles of the projections above, and we feel, as we see it, that it is both reasonable and effective, and could not have been omitted with advantage.

In speaking thus of rustication, I assume, of course, that it represents the jointing of actual masonry, and is that which it appears to be. The exhibition of sham jointing has not been confined to one school or time, for in many old buildings may be seen a sort of rustication, caused by marking out the walls in regular courses, by means of colour. This is very different from the system of the Florentines, or any other method of legitimate rustication.

With Palladio, Vignola, and their followers, we terminate our examination of the architectural Renaissance of Italy. Their works illustrate the third and last period of the movement. The vigorous efforts of the earlier styles, with their elaboration of decorative detail, were over, and in their place, men came to substitute a more regulated and formal manner, with much knowledge of precedent, and adherence to rules. It has been said that Vignola by his treatise on proportions, and Palladio by his prescription of strict regulations, would have made of architecture an exact science, in which precise knowledge might render success certain. This is, however, very far from being a fair statement of the case, as is proved by the examination of Palladio's own works. It is true that he aimed at precision in his application of the orders; but there is nevertheless much variety in his different designs, and his arcades at the Town-hall of Vicenza, already referred to, are boldly conceived, and happily treated. His details were usually refined, and we must recognise the difficulties of the task he attempted to discharge. His palaces at Vicenza, whatever their faults, have served as models to the architects of most civilised countries, and they have survived the attacks of the most unsparing criticism. We may, perhaps, realise more fully the merits of Palladio, when we contrast his measured and studied compositions, with the reckless and bizarre specimens of tricky designs of so-called architecture which followed in the fantastic reaction of later days.

In Palladio's buildings we find occasionally the mistake of enormous details misapplied, as at the Valmarina Palace; but in other instances an order was used to each story, with details properly subordinated. Propriety of detail and proportion has thus given a fame to Palladio which would not have been gained by the picturesqueness of his designs, or the fertility of his inventive genius. We are, at least, thankful to escape, under his guidance, from the gigantic orders, ill-proportioned mouldings, and broken pediments, which even the great name of Michelangelo cannot justify. We feel that, at least, his architecture is the work of a trained scholar, expert in the use of the materials which a not-to-be-forgotten past had placed in his hands. His style has influenced the revival of Classical architecture throughout modern Europe, including this country. Wren, Jones, Vanbrugh, with many others, have followed more or less Palladian precedents, and Somerset House, by Sir W. Chambers, is just such a building as might have been erected by Palladio or Vignola.

The use of Classical architecture is still common, although its progress has been checked by the Gothic Revival. The increased knowledge of the history of architecture has brought to the surface a variety of opinion, often fiercely self-assertive. We have heard the architecture evolved from the principles of ancient Greece and Rome, denounced as inadmissible, and stigmatised under the name of Pagan, as unfit for the use of Christian men. An active spirit of theological revival has led to the restoration of our churches, in the old Gothic styles, in which they were erected. In the city which boasts of St. Paul's, Mediæval architecture has been declared the only form of art admissible for the worship of the church. Eloquence of critical disquisition, which has never been surpassed, has occupied itself with declaring the Renaissance an unholy thing; an evil spirit to be exorcised; a fault to be purged by a return to the straighter and better ways of Mediævalism. To some among us, the choice of a style might almost seem to be a question of morality, rather than of architecture.

In deciding such a question, it must ever be remembered that a complete revival cannot but be impossible, whether of the architecture, or of the spirit of the past. The world moves onward, while we argue, and each generation has its own requirements. An age of Faith is succeeded by an age of Inquiry, to be followed, it may be, by an era of Superstition. A time of freedom presses on the heels of a *régime* of authority. We may copy Greek temples, but we cannot be as the Greeks were, or think their thoughts. Neither can we revive the Mediæval spirit by clothing our architecture in a Gothic garb.

It cannot be admitted by reasonable men, that limits are to be placed to the adoption by mankind of the extension of their powers by the increase of knowledge. The employment of machinery, for example, sometimes so fiercely denounced, is but a natural consequence of that use of his intelligence by man which has been implanted in his nature by Divine power. To be for ever protesting against the things of to-day is a profitless, as well as an easy, task. The evils before us are always evident, while those which might be caused, or revived, whether by our action or our inactivity, are hidden from our view. There are some critics who think the present always bad; their artists always failures; their own country always wrong. This is not a spirit which is likely to lead to healthy development in architecture.

If we cannot recall the past, it does not follow that we may not be gainers by its experience, and thus take a new departure. We may fairly profit by its achievements, and draw precedents from its treasuries. This is one of the reasons why every true architect must respect antiquity, and wish to preserve our ancient monuments; and as we know, in these days, all that others have done in ancient times, we have naturally the responsibility of choice of style placed upon us. It is not, therefore, reasonable, that we should be forced to select one type, and use it for all purposes, merely because our predecessors did so, in ignorance of any other. Still less can it be fairly contended, that we are not at liberty to avail ourselves of successive phases of the same style, because the history of our art shows that such a course is inconsistent with chronological accuracy. It is not the business of the modern architect to erect buildings which may deceive his successors as to the date of their execution. This would be to aim at architectural forgery, while our duty is to do our part, in our own day, in the same spirit, as that in which our predecessors worked in theirs.

We may, therefore, claim the liberty to select different architectural types for different things: thus, to some of us, the Gothic styles may appear the most suited for churches and sacred buildings; and the Italian more appropriate to secular work.

The first of these decisions has already been accepted, for the present, at least, in this country, and Gothic architecture has been practically adopted for church building. It is natural that this should be so. The charm of our old mediæval buildings, and the hallowing associations which cling to them, are enough to justify such a choice, if justification be needed. This is not only, or chiefly a question of architecture. We do not want to break with tradition, in our ecclesiastical buildings; we prize the continuity of our religion; we like to think that we are worshipping, as our fathers did, in so far as the external forms of our churches are concerned. We are glad to free ourselves, if only for a time, from the pushing, selfish, bustling world,—from the vulgarity of newness,—from the ever-active pursuit of the last fashions of thought or deed.

In our venerable cathedrals, we wish for no change, we ask for no novelties. As we commune with past centuries, we find ourselves confronted with the old, old realities of human life. Here, at any rate, the weary are glad to rest: let others agitate for change and newness; for us the Old is better. The most advanced science can here do nothing for us; new discoveries, whether philosophical or architectural, have no bearing on the momentous questions, which bring worshippers to the churches. There has come to us no modern solution of the mysteries of life and death, the origin of evil, the eternal conflict between right and wrong. Our old churches are thus precious to us, for what they are. They stand out as beacons on a dreary shore, which must not, in the public interest, be either removed or tampered with.

The preservation of such buildings is, therefore, our bounden duty, and now that Gothic principles have become well understood, through that revival, in which the distinguished architect, whose loss I deplored in the first lecture of this series, took the leading part, there can be no doubt that every architectural student should qualify himself for the important responsibilities that will be laid upon him, in practice.

Palladio and Vignola did not take more pains to study and follow ancient precedents, than Sir Gilbert Scott, and the pioneers of the English Gothic revival. The conflicts of taste waged over the five orders, have found a modern parallel, in the discussions we have heard of Norman, Early English, Decorated, and Perpendicular Gothic, and in the ecclesiological wrangles of our day, on the religious symbolism of First, Second, or Third Pointed.

In the first stages of a revival, accuracy is difficult of attainment, and so it happens that to be able to copy well is a distinction. It is only afterwards, that more is asked for, and that an originality is required, in the use of accepted details. The young architect in an old country like our own has great advantages over those in more modern lands, such as America and our colonies. He has his precedents at his door, and can more readily imbibe the spirit of the past. It is well that he should do so, provided he remembers that modern society has its own claims, which must not be set aside in favour of antiquarian lore. A system of merely retrospective design easily becomes archæology instead of architecture; a science rather than an art. Architects having the courage of their convictions should strive to lead the public taste from bizarre oddities to sterling merit of design, to think of present excellence and future progress, as well as of the triumphs of the past.

While recognising the existing preference for Mediæval architecture for ecclesiastical works, and conceding that in Gothic churches a certain amount of actual copying may be defended, it cannot be allowed that the Classical style must of necessity be neglected. The Palladian school of architects had a definite intention, which was to design a modern style, that should be based upon the architecture of the Romans. Whatever merit may be assigned to their works, they certainly produced buildings unlike any that had previously existed. They copied, or intended to copy, literally, the details of the orders; but neither Palladio's arcades nor Sansovino's palaces are direct reproductions of actual buildings. They, at least, succeeded in applying ancient art to modern use, in a manner which has been imitated ever since.

We have had, in this country, many tastes, and various revivals; but through them all, the Palladian or Italian manner of Wren and Inigo Jones has held its ground, and something of a reaction towards it has lately appeared in unexpected quarters.

In most European capitals the chief public buildings, as well as almost the whole of the private houses, are in this style, however divided may be our allegiance at home. If we have erected Mediæval Houses of Parliament, the French have shown us in their Hôtel de Ville of Paris, now unfortunately destroyed, how convenient and magnificent a civic building may be designed after a Classic manner. The application of the highest class of painting, and of the best sculpture, is natural and welcome in the case of Classical architecture, the Renaissance of which was fostered and directed by painters and sculptors.

If it be said that such architecture is unsuited to our climate, it may be pointed out that it has been generally adopted in climates not much unlike our own, and those who have lived in one of the solid houses, of simple outline, which the architects of the English Renaissance have left to us, would not always care to change, to the so-called picturesque creations of Modern Gothic, with their voluntary carelessness of plan, and the maximum of surface of external walls and roofs.

In modern domestic work we must often welcome novelties, which we do not desire to see in our churches. We may, in the latter case, be content to rest satisfied with piers, which are obstructive, and arches of unnecessarily contracted span, while, in secular buildings, convenience must rule, and science be invoked to aid us to overcome difficulties, and economise space. It is not wise of the architect to leave such matters to the engineer. He must use his art intelligently, being ever ready to adapt it to all reasonable requirements, and the Renaissance, as a modern style, will apparently have less difficulty in accepting this position, than the more stern and stiffer types of Mediæval art.

For grand architectural effect, moreover, and for the convenience of a spacious interior, Classic architecture possesses the dome, if not absolutely, at least more fully, than any other style. Those among us who are accustomed to visit St. Paul's, cannot even accept, unreservedly, the popular doctrine that all our churches must of necessity be Gothic. We require in modern days, and for Protestant services, wide areas more than "long-drawn aisles," and in few other English buildings can anything be seen grander than the effect of St. Paul's during the services of the church, with its congregation of thousands filling the vast area under the dome, and hanging on the words of the preacher, in the dim twilight of a winter afternoon.

A calm review of the history of the Renaissance, and of the circumstances which led to it, conducts us to the conclusion that the movement is not yet over. The Classical tastes which gave to it the first impulse, still exist among us, and are likely to continue. An architecture which can give us solidity and magnificence; which can adapt itself to purposes of utility, and assimilate progressive scientific construction; which unites elegance of proportion with refinement of detail; and which welcomes the best efforts of the painter and the sculptor in a loving combination of art, cannot be easily banished from the modern practice of the civilised world.

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**Nell Gwynne's Birthplace at Hereford.** During the Assize week in Hereford, Baron Huddleston walked down Gwynne-street in search of the exact spot on which the old cottage stood wherein by birth Nellie Gwynne became a citizen. There is no vestige of the cottage remaining, either to "point a moral or adorn a tale." Two Hereford citizens are ready and willing to bear the cost of a suitable tablet being erected in the garden wall of the Palace, at the precise spot where the cottage stood, if the Town Council would assist the object so far as to make a formal application to the Bishop for consent to have his lordship's boundary-wall pierced to receive the carved entablature.

## BABYLONIAN FOUNDATION STONES.

AMONG the various customs which centre round that important event the erection of the house or home, there is none so universally met with as that of the placing of some particular brick or stone, or selected object, as the foundation record. Strange ceremonies centred round the laying of the first stones of many of the great edifices which now stand before us as the ruined memorials of the heroic past. In China, where land and almost every object in nature is possessed by the spirits, many and strange customs are resorted to in order to propitiate these celestial freeholders. Ancient legend tells of how, in many of the hoary castles by the Rhine, human beings have been immured to pacify the supposed anger of an offended spiritual landowner. In most of the museums, both in England and on the Continent, are to be seen stones bearing dedications and invocations to the gods, which have formed the foundation-stones of the great edifices of the Greeks and Romans. Considering how prevalent such a custom is among nations, both savage and civilised, it is but natural that we should expect to find some traces of such a custom prevalent in that early cradle of the arts and sciences, the Babylonian empire.

It had long been known that the terra-cotta cylinders which form such important records of the history of the descendants of Ninus, and Semiramis were nearly always to be discovered in the foundation-courses of the temples or palaces. But these carefully-compiled and beautifully-written records of the kings of nations were a very great advance on the ruder examples which formed the memorial records of the most ancient kings of Babylonia. Still it is curious to note that these highly-finished records, preserved even till the latest periods,—the old primitive Akkadian name which had served to designate the ruder examples of which I shall speak,—they were called the "Timēn"; that is literally, "the floor-mark," or foundation-mark. The word is a compound one, built on a similar principle to the numerous Chinese words. The first syllable, "Ti," means a line, or horizontal line, in particular, and the second is "mēn," the substantive verb "to be." It is, therefore, clear, that these objects indicated the floor or foundation course. But the word did not originally indicate these elaborately-compiled records, which have been so great a treasure to the historian and the philologist. That most interesting compilation which the researches of Assyriologists have recovered for us, the cuneiform syllabary enables us to see very clearly almost step by step the growth of many of the customs of that most wonderful people. Here we find the plain perpendicular wedge standing as an ideographic representative of such centralised ideas as "one," "man," "reed," "record," "memorial," "spear," "arrow," and the *Timen* or "foundation record." Hence we can see very clearly that the earliest record of the proprietorship of land was the "reed" cut from the adjacent river or marsh bank, and stuck in the spot where primitive man intended to erect the home.

The spear and arrow were also used, they being the daily handlings of the subjects of Nimrod.

The pictorial nature of the primitive sign which represents the house, or home, indicates very clearly that it was of the rude wattle and dab construction in its earlier stages. Being evidently composed of the rough reeds cut from the marsh lands on the banks of the dual rivers of the delta, and the one tall reed, they being on an average 12 ft. or 15 ft. high, would form a fitting corner-post as a record and type of the corner-stone of after-time.

The architectural history of the Babylonian empire may be very distinctly divided into three periods,—the Primitive, a period the only evidence of which is to be found in the record of the pictorial signs of the syllabary; the second period is the Brick, a period which extends from the twenty-third century before the Christian era until the end of the Empire, but which, in about the eleventh century, gave rise to a new style, in which stone and brick became combined, and gave the system of building which was adopted in the Assyrian and later Babylonian palaces. Fine examples of this mixed construction of huge, massive brick terraces, faced with stone, are to be found in the palace of Tiglath-Pilieser, at Kileh Shergat, the site of the ancient city of Assur, and in the royal residences of Assur-nazir-pal and Shalmanesar III., at Nimrud or Kalakh.

The brick period gave rise to a new species of memorial or foundation record; this was the inscribed brick which is so common a record, and which became the established custom, every brick in some of the great temples being stamped with the name and titles of the great king who built the edifice.

The legends on these bricks were very curt, at first being confined to the name of the king and his pedigree, together with such primitive titles as the "Strong Man," "The King," and the name of the city over which he presided, together with the name of the divinity to whom the fane was dedicated. These brick legends, meagre as their contents are, have still served to preserve the names and titles of more than a hundred Babylonian kings, and to establish beyond doubt the site of many of the most ancient cities.

In about the eighteenth century before the Christian era a new form of memorial record came into use, and was adopted in most of the sacred edifices, and as one of these most interesting records of the past has just come into my hands, I will append a translation of the document, which very fully illustrates the character of these monuments.

Most of these interesting records which are now in the British Museum are written in the most ancient language of Babylonia, the Akkadian or Turannian dialect of the tribes which first colonised the delta of Tigris and Euphrates; but the one which forms the subject of this notice is of great value as being written in the pure Semetic dialect of Babylonia, and being, therefore, one of the oldest known,—Semetic documents more than six centuries older than the Moabite stone.

This monument is a small alabaster tablet of fine surface, and evidently a selected stone about 5 in. broad by 8 in. long, and inscribed on both sides. It is curious to note that the stonemason who prepared this tablet for the reception of the inscription has evidently taken one of the terra-cotta tablets as his model, for he has cut the alabaster so as to assume a pin-cushion shape, rising in the centre,—exactly similar to that of a tablet, which, when baked, swells and rises into a cushion shape.

The scribe who wrote the inscription has evidently treated it with a true religious devotion, expending on it great care, and striving to attain the greater neatness, and, indeed, some degree of ornament. The inscription is carefully written upon lines ruled on the stone, and accurately spaced. The script adopted is the old archaic type; but, as an example of that class, and considering the age of the document, it is entirely finely written, nearly equal to the documents of many centuries' later. Before proceeding to give any further details of the age and importance of this interesting record of the past, I will give a translation of the document:—

1. To Merodach the great Lord,
2. The giver of fertility from the gods.
3. The Lord of the Temples of Bit Saggal and Bit Zida.
4. His maker, Khammuragas,
5. The proclaimed of Anu (Heaven).
6. The hero of Bel, and the
7. Offspring of the Shamas (Sun god).
8. The Prince (Shepherd), the beloved of Merodach.
9. The heroic King. The King
10. Of the Tribes of Sumir (and) Akkad.
11. King of the Four Quarters.
12. Male and female to his
13. hand he had given.
14. Their seed to his hand they have poured.
15. To Merodach his maker,
16. The Lord of Barzipa (Borsippa)
17. His beloved city
18. Bit Zida, his favourite shrine,
19. He has made it.

From this inscription we learn many points of great interest, both as regards the history, and the mythology of the early Semetic population of the Tigro-Euphrates delta. This temple of the god Marduk or Merodach, of which this stone is the dedication record, was situated in the city of Borsippa, a sacred suburb of Babylon, now represented by the mound and ruins of the Birs Nimrud, situated about four miles north-east of the ruins of Babylon. From this inscription we learn that a monarch named Khammuragas, whose name indicates him not to be of Semetic but Turannian origin, desirous to propitiate the great god of the Semetic Babylonians, built for him, in the sacred city of Barsippa, a temple called Bit Zida, *i.e.*, "the House of Perfection."

From the canon of the Babylonian kings we can trace the date of this religious king Khammuragas, to be about 1680 B.C., a date which forms an important epoch in the history of Babylonia. Those who have examined the collection of early Babylonian antiquities in the galleries of the British Museum will note that the majority of the inscriptions of this monarch, the reading of whose name is now found, beyond doubt, to be Khammuragas, instead of the old form, Khammurabi, adopted by early decipherers, are written in the ancient agglutinative Turannian Akkadian. Still, however, there is in the Central Saloon a most valuable exception to this rule in a bilingual inscription of this monarch, written in Akkadian and Semetic, on the drapery of a statue,—the two versions being arranged in parallel columns.

The inscription which I have here translated, together with a Semetic text on a clay tablet, now in the Louvre, all tend to prove that more than thirty-five centuries ago there must have existed in Babylonia a numerous and influential class of Semetic origin.

This monarch, Khammuragas, was the ruler of the Kassite or Cossean tribes who dwelt in the southern provinces of Elam, and who had for some time been growing in power. He combined his forces with the rich trading Semetic classes of Babylonia, and succeeded in overthrowing the Elamite dynasty, which for some time had held rule in the land. In his inscription he assumes the title of the "Heroic King," and in the bilingual in the British Museum he assumes still more grandiloquent attributes; such as the "vanquisher of his enemies," the "maker of war." There is, however, one most important title in this text which proves very clearly the idea which, more than five years ago, I put forward, that this monarch was found in the monuments of the period of his rule under two names,—the one Semetic the other Non-Semetic. The king here calls himself "offspring of the god Shamas"; and in the monuments of the Kassite dynasty we find this king, Khammuragas, occurring at the same time as another king named Samsi-itibna, a name which can only be translated "the sun has made." It is, therefore, evident that these names represent the same person.

There is another extremely curious fact which appears in this short dedicatory legend which will be of great interest to the students of anthropology. In lines eleven and twelve, the monarch mentions "the people of the four quarters, male and female." Now, in the Semetic inscriptions of the purely Semetic period, it is extremely rare to find any mention of female; but among the Akkadians the women were respected and protected, and the mother bore the beautiful title of the "house goddess." It, therefore, shows the dual ethnic influences which were at work. This monarch, Khammuragas, seems, from his records, to have been a great patron of the builder's trade, as carried on at that period, and even to have exceeded by the greatness of his work many of the kings who succeeded to the throne.

Bricks inscribed with many of his legends are found in the foundation-courses of the temples of Babylon, Borsippa, Ur, Erech; and, as a sort of outpost palace on the borders of the Elamite provinces of his realm, he built in the neighbourhood of Baghdad a small palace, in the ruins of which stone and bronze monuments bearing his legends have been found.

The chief and greatest of his works have been the great canals which he constructed in the neighbourhood of Babylon. The largest of these was called "The River of Khammuragas, the Joy of Men," and is probably represented by the large canal on the north-west of Babylon, or, perhaps, by the Nahr Malkah, or Royal River.

At the time when the foundation record was written, the Babylonians appear to have had no regular chronological system; for, in the commercial documents of the period we find that they date by the year of important events. The two principal of these epochs are the year when Khammuragas, "the River [canal] of Khammuragas, the Joy of Men, opened,"—an event which is recorded in the inscription in the French collection now published in fac-simile by M. Menant, and a second great event is the year when the king made the temple of Merodach, which is recorded by the foundation-stone which I have translated.

There appear to have been two modes of preserving these precious records. In some cases, as with the cylinders, they were placed in prepared cavities in the foundation course.

Being placed there with all the ceremonies attendant upon great religious events; victims were slain, and prayers said to the gods, the king's protectors. Another mode was to place stone tablets of the class to which the present example belongs,—in a stone or metal cist, covered by a lid, and bury them beneath the altar, or in some sacred spot in the temple. Such are some of the facts to be gathered from this short but interesting inscription, which, thirty-five centuries ago, was written for a pious king, and which at the present day forms the subject of my article.

In my next contribution I intend to give an account of some most interesting antiquities which were discovered by Mr. Hormuzd Rassam, in his excavations on the mound of Ballawat, including an Assyrian foundation-stone.

W. ST. C. B.

## "HISTOIRE ET THÉORIE DE L'ARCHITECTURE."

WE have already, and at some length, noticed the general scope and some of the views in detail of M. Lesueur (see p. 217, *ante*), chiefly in regard to Egyptian architecture and its influence on the subsequent development of the art.

Turning to his chapters on Greek architecture, we find in the introductory chapter a full recognition of the fact, the significance of which has hardly, perhaps, been sufficiently appreciated, that on the soil of Greece itself there is little or nothing to furnish us with the materials for judging of the mode of development of their beautifully-perfected and logical architecture. The fact affords remarkable evidence of the active mind of the nation and their aspiration for progress and perfection. Much of what would have formed the links in the chain must have been destroyed and rebuilt, in contradiction of the modern principles which would be inculcated by a society for the preservation of ancient buildings. The other fact in Greek architecture which is equally remarkable is the existence, and, to a great extent, at the same time, of styles of detail so radically diverse as those illustrated in the Doric, Ionic, and Corinthian buildings. People who take a superficial view of Greek architecture often speak of it as if these three stood in a relation of sequence to one another, as if they illustrated the progress from a simple and stern to an ornate architecture, which is so familiar a fact in many pages of architectural history; and, in one sense, they perhaps may be thus regarded,—since it is at least obvious that Doric was the style most early employed, and that Ionic and Corinthian came in as somewhat later fashions. But the peculiarity of the matter is that there is no connexion between such leading details as the three capitals, for example, of the three styles. The development of several forms of Gothic capital from one another is perfectly obvious, and, in fact, after pure Norman is once left, is so continuous that it is hardly possible to fix the dates at which the changes can be said to have taken place; and the Roman composite capital, also, is a direct descendant from, and a logical development of, the Corinthian capital. But the three forms of capital as existing in Greek architecture have no such historic relation; they are all designed on different principles and lines, and not one of them could be evolved out of the others. The conclusion necessarily is that they were successively chosen, developed, and adopted as a matter of deliberate choice and artistic intention; and the importance of this fact in its bearing upon our estimate of Greek architecture can hardly be overrated. In fact, it has an important meaning in regard to architecture generally; for it is a fact which is directly contradictory of the theory, so much favoured by recent writers on architecture, that this art is entirely governed in its developments by what may be called spontaneous generation. Much in Gothic architecture might be brought forward in opposition to this theory; but in regard to Greek architecture, at all events, the existence of the three different orders side by side is an absolute proof that the Greek architects, in the zenith of their art, deliberately chose certain forms as worth working out, and were not impelled merely by the unconscious progress from a simple form to successive elaborations by little and little in the way which Gothic ornament illustrates; and having worked them into what they considered a perfect form, they seem to have had no desire to depart from or to go beyond this merely for the sake of variety.

In architecture, however, it is true that *ex nihilo nihil fit*, and we are not to infer that the Greek architects invented their styles out of nothing. In the case of the Doric it has long been recognised that they were indebted to Egypt for the originating motive, and the connexion is not difficult to trace. Where are we to look for the originating motives of the Ionic and Corinthian capitals? Some eminent critics refer them both to Asia Minor, and adduce examples of work having a sufficient resemblance to give colour enough to the theory, which is, besides, in accordance with what is believed to be the most probable ethnological theory of Greek connexion. The evidence, however, is scattered and fragmentary, rather such as to give colour to the supposition than to furnish any connected argument for it. And one point in the Asiatic theory of Greek orders has always seemed to us very much open to question; that, namely, which derives the Ionic order from a detail of a Persian form of capital in which similar scrolls or volutes occur placed vertically, not horizontally. It is not in accordance with anything we know of in architectural development that a form should be taken from one position and deliberately turned round, so to speak, and made to serve a new function of design (which is really what the change in question would amount to). It is almost as if one were to transmute a Gothic capital into a boss. We looked with some interest through M. Lesueur's pages to see if he had any definite suggestion to make as to the origin of the Ionic and Corinthian capitals, and are not disappointed. He has formulated pretty positively the theory that they are both, like the Doric capital, of Egyptian origin. It will appear, no doubt, at first view, difficult for those to whom the idea is new to trace the connexion; and it may be said that M. Lesueur has so obviously adopted the idea of a very close relation between Egypt and Greece, that one must allow something for the proclivities of a theory which would naturally lead towards the emphasising of any such similarities between Egyptian and Grecian work as would seem to support the theory. But his suggestion on the subject is ingenious, novel, and, so far as the Corinthian capital is concerned, it has the merit of suggesting transmutations, which are natural and not improbable in themselves, although in this case, too, we have lost the intermediate steps of the change which might have rendered the argument conclusive. But he refers the Corinthian capital to the larger and principal form of Egyptian lotus capital as found at Karnac and elsewhere,—the capital with the spreading bell. Although the aspect of the Egyptian capital, with its foliage merely lined out on the surface of the bell, appears at first sight different enough from that of the Corinthian capital, the shape of the bell is there in both, with very considerable similitude, and, as Quatremère De Quincy puts it, the Egyptians used in their capitals the plant of their own country, and the Greeks, in adopting the same principle in a capital founded upon the general form of the Egyptian capital, naturally took the plant in turn of their country. So far De Quincy's argument, which M. Lesueur quotes as an important witness in his favour, though we observe that he does not pay by any means the same degree of respect to De Quincy where that author's opinions are adverse to his own. However, in this case we are inclined to think both are right; and we may add on our own part that the distinction between the two styles of capital in regard to carving and relief is not more than the difference of the materials in which they are executed would almost inevitably lead to in the end, even if we were to find early examples of Corinthian capitals approaching much more closely to the Egyptian type. The case of the Ionic capital is more doubtful; in fact, the genealogy suggested for it strikes us as decidedly whimsical. M. Lesueur derives it from a form of Egyptian capital which consists of the head of Isis with the hair, at least a very distant conventional semblance of hair, descending in a heavy fillet on each side of the face. His idea is that the Ionic capital is a Greek adaptation of this with the fillets of hair coiled round in a scroll instead of descending perpendicularly; the representation of the face having disappeared in the process of the advancing severity of Greek architectural ideas, but the shape of the rounded chin of Isis still existing, as a kind of "survival," in the dip of the fillets which connect the two spirals on the face of the capital. In support of this idea the author refers to the fanciful notions of Vitruvius in regard to the Ionic order, to the effect that th Greeks twined round the fillets of the Ionic capital to represent the manner of curling round the hair in a woman's *coiffure*, and that they increased and made more conspicuous the flutings of the shaft to represent the long folds of the robe. If there were any certainty or probability that Vitruvius was in this case repeating an idea actually borrowed from the Greeks, the illustration would no doubt be very much to the purpose; but it is impossible to believe that it is anything more than mere romancing on his part; and the whole theory, ingenious and pretty as it is in a way, seems to us a great deal too far-fetched and improbable.

If there is, indeed, any connexion between the Ionic and the Isis-headed capitals, we want a great many intermediate steps in the connexion to make it evident; it must have been a very gradual and almost insensible evolution of the one form from the other, and we certainly ought to find some traces of the intermediate steps either in Egypt or in Greece: and the idea that the Ionic volutes could have had in the Greek mind any relation to curls of hair is tacitly contradicted by the fact that there is no representation in Greek sculpture of such a *coiffure* as that would imply. We do not believe that the origin of the Ionic capital can ever now be satisfactorily traced; but its feeling seems to us to indicate almost unmistakably an Asiatic connexion, and has no consonance with anything known in Egyptian work.

The chapters of the book which are devoted to Greek architecture, and which form about one-half the volume, run to a great extent into what we can only call architecture by arithmetic. Over and over again we have tables of heights and subdivisions of heights, and every temple the proportionate heights in which do not correspond with any other example, is made into a separate variety: so that Doric architecture is credited with almost as many distinct varieties as there are examples in existence. What is the use or the sense of this, except to make a show of learning, and to create difficulties and intricacies to perplex the memory of the student, we profess ourselves quite unable to understand. Some of the special announcements in regard to the older temples, the early examples of Doric, are rather startling. M. Lesueur has come to the conclusion that the Temple at Corinth is not an old Greek building at all, but an archaism constructed by the Romans! He has discovered "*des indices certains*" which prove this, but we do not learn what they are, except that the entasis of the columns is "*affreusement exagérée*," and that an entasis is not required except in a column resting on a base (but he gives no reason for this statement either). He does not tell us why this is, or how we are to excuse or account for the entasis in the Parthenon columns. The only other reason for this theory about the Corinth temple is that Mummius sacked and destroyed Corinth 146 B.C., and that it is inconceivable that this temple should have been spared. Is it, however, any more conceivable that the Romans, having destroyed the existing Doric temples at Corinth, should subsequently have built an imitation of them deliberately? It would require a good many more "*indices certains*" than M. Lesueur has supplied us with to make us believe that. A page or two further on we are equally struck by the curious theory started about the great temple of Pæstum, that an earthquake has partially submerged it beneath the sea, and that it has subsequently risen again; by another earthquake we presume. The author might well comment on its remarkable state of preservation after this. Some of the other remains, the "portico," for instance, show, it is admitted, no traces of this submersion, which must therefore have been effected, and the subsequent upheaval have followed, within a very short period, unless we accept M. Lesueur's theory that the temple of Ceres and the portico are, like the temple of Corinth, late Roman imitations, a judgment passed upon them chiefly on account, again, of the disproportionate entasis of the columns. Whether this theory and that in regard to the Corinth Temple are really worth any consideration or not, we should hardly wish to say positively without having made a fresh examination of them on the spot; but certainly the idea of the Romans, who were so peculiarly practical builders, having anticipated the modern architectural sentiment which has led to archaic

mitations, seems inherently about as improbable as anything could well be.

We can hardly undertake to follow the author through the various rules and regulations of architectural design, many of which seem evolved from very insufficient and even fanciful premises. He has derived from Egyptian architure, for example, the principle that "the shorter are the columns, the greater should be the number of the flutes"; but supposing that it is possible to bring examples to countenance the idea that such a rule was adopted by the Egyptians, what is the use of it in relation to architectural design? It would appear to us to be, on the whole, a mistaken idea, and there is certainly no connected evidence of the Greeks having adopted it. It is true that the short order of the Pæstum temple has twenty-four flutes, and finding it so (and apparently for no other reason than because he finds it so) M. Lesueur says "the hexametrique order demands imperiously that we should raise the number of the flutes to twenty-four." It is impossible to see any logical or artistic reason for this, and the author quite ignores the one really good and comprehensible motive which can be given (and was first stated, we believe, by Mr. E. L. Garbett) for preferring twenty flutes to either sixteen or twenty-four, viz., that this number brings an edge of the fluting under the angle of the abacus, and the flat of the fluting under the centre of the abacus, and thus establishes (as in the Parthenon) a more direct relation in design between the shaft of the column and its capital. Of M. Lesueur's remarks on the curved lines of the Parthenon we have already spoken; he, however, admits one "courbe très-réelle" as existing in the Parthenon, that of the columns, which, however, he dismisses with a good deal of contempt. He states that it was merely a question of a large arc of a circle, but that even that way of regarding it is only of use as a geometrical illustration, the centre of the arc being two far away for any practical use, and that "dans la pratique, on se servait déjà probablement d'une règle pliant," a bent rule we suppose being intended by this expression. Mr. Penrose has explicitly stated that the curve is a hyperbola, and that in those places where the surface is sufficiently in preservation to be minutely measured, the actual curve hardly differs from the calculated curve by the thickness of a sheet of writing-paper; and we are content to accept Mr. Penrose for *facts*, at all events. And then M. Lesueur supposes this curve was got in a kind of approximate manner by a bent rod. It is difficult to read such nonsense with patience. Is the idea of drawing out the curve correctly, and then taking templates from it, beyond the experience of the Professor of Theory at the School of the Beaux Arts? At that rate, it would seem to be all theory and no practice in that institution. Before quitting the subject of the Parthenon, we must credit M. Lesueur for the one point in his criticism of the refinements of that building which seems to have some reason in it. He objects to the building of the walls with a deviation inwards from the perpendicular, simply on the ground that it is bad building; he would not object to it if it were an external batter for optical effect, with a perpendicular face inward, but he objects to the "surplomb" of the whole wall of the cella: and this is at least a reasonable and comprehensible objection. At the same time it may be urged in reply that the over-sailing is so slight as to have no practical effect on the stability of the walls, and that the optical considerations which led to the adoption of a diminution upwards of the external lines, viz.,—the admitted tendency of parallelograms with vertical sides to appear larger at the top, would operate equally in the interior of the building.

Into the long examinations and criticisms of the respective restorations of the Mausoleum by Mr. Pullan, and of the temple of Ephesus by Mr. Wood, we cannot here enter; they are special subjects in themselves, and seem to occupy a disproportionate space in a book which professes to represent the "History and Theory of Architecture" at large. But the more we consider the book, the more we are astonished that such a title as this should be claimed for it. The whole course of architecture, from the eleventh to the sixteenth centuries, is "polished off," as one may say, in a single sentence, to the effect that the monuments of the eleventh and twelfth centuries in France are the logical development of the Roman system of construction, and that unfortunately the decadence of architecture commenced to make itself felt, in the thirteenth century, by the introduction of the Teutonic style, and continued to the end of the sixteenth century. In Italy the revival of architecture came just at the epoch of the greatest decadence "*chez nous*":—"If we had continued to follow the tradition after the twelfth century, the Renaissance would have appeared in France three centuries sooner than in Italy." And Rheims and Amiens would never have been built; and this M. Lesueur would have regarded as a gain to architecture! It does not seem to be considered worth while even to recognise the fact that generations of cultured people have looked on the Mediæval cathedrals as among the great glories of architecture, and as the source of some of the highest aspirations with which art has furnished them. Truly we may be pardoned for again saying that it is difficult to read such stuff with patience.

Regarding the book merely as a study of "the orders" (which is what it really is), it contains an important and useful collection of facts, which might, however, have been made more valuable by more copious illustration. It contains theories a good many of which have the merit of originality, and some of which are very suggestive; but some, on the other hand, exceedingly fanciful and improbable, and based certainly upon no sufficient data; and the author's apparent facility for seeing facts in such a light as to support his own theories (and in such a light only in many cases) is so marked as to compel us to be very cautious in even accepting his facts where they are not such as are supported by the general knowledge and experience of architectural students: and this again much weakens the value of the work even as a collection of facts. In regard to the view which is prevalent throughout, as to the method of design of Classic architecture and the method to be followed in studying it, we should say that what might be called the mathematical view of architecture is far too much insisted upon in those points on which it is most open to question (for instance, in all the complicated rules as to proportionate heights in various orders or varieties of orders) and the value of which is really very arbitrary; and it is ignored and undervalued in those very points, such as the optical corrections of the Parthenon, which really have a practical meaning and are based on physical facts. This is an unsatisfactory summary to have to make even if the book be regarded only in the light of a guide in the historical study of antique architecture. But if we regard it, as from the title we presume is intended, as a basis for the practice of architecture by the modern architect, we should say that nothing could be more likely to check and to freeze the development of genius, fancy, or originality, in young architects, than to have presented to them as a text-book this collection of frigid calculations, under the name of architectural design. It is not in this way that new life and interest will be put into modern architecture; and as the book is not a safe or an accurate guide even in the narrow view of architecture which it recommends, we cannot see anything to justify the flourish of trumpets with which it has been sent across the Channel, nor can we congratulate our neighbours on the adoption, in their much-vaunted national school of art, of a theory of architectural instruction so rigid, formal, and lifeless as that conveyed in the laborious pages of their Professor of Architecture.

## THE DEAD LOCK OF THE THAMES VALLEY DRAINAGE.

THE rejection by the House of Commons of the Bill for the drainage, or, more properly speaking, for the outfall sewerage, of a large district of the Thames Valley, is a very instructive illustration of the truth of the view which we originally took of the Public Health Act of 1872. We have not been present on a single occasion, or seen any comprehensive report of any meeting for the discussion of sanitary measures, in which the inefficiency of that measure has not been made a ground of complaint by those who were desirous for sanitary improvement. The local power, instead of being rendered automatic, has been simply frittered away by the creation of a number of unconnected, uninstructed, unregulated, local authorities. No doubt the Local Government Board has done all in its power to aid; but that power has been purposely curtailed by the Act. Even such a useful and inoffensive step as the publication of an annual report of the proceedings of each local authority, for sanitary purposes alone, has yet to be asked for. What information is given is buried in the thick volumes of the Reports of the Local Government Board. The public are only aware that local indebtedness is increasing at an enormous rate; that in some places (perhaps in more than some) the sanitary rates have been swollen to a large amount, without any measure of a radical nature for the disposal of sewage having been even attempted; and that in certain cases, as for instance at Bournemouth, expensive works are now being carried on on a principle which, according to some of the most reliable authorities as to sanitary matters, will have the result of making the place uninhabitable, by the discharge of concentrated and unpurified sewage into the sea. Again, there is the standing complaint of the sanitary officers, that their reports meet no attention because the authorities to whom they address them have the fatuity to treat them as waste paper,—from the want of any superintending general authority. Month after month, year after year, there has been a dull uniformity of reports of this nature. And the resolutions of the Congress on Water Supply held last May at the rooms of the Society of Arts do not seem to have had any better sequence or result than the hosts of proposals that have preceded them.

To these old griefs, arising from the want of organised system, is now added a new proof of the impossibility of self-originated organisation. We have seen, with the advice of the officers of the Local Government Board, that the various towns and districts in the Thames Valley between the metropolis and Windsor, have come to Parliament in order to authorise, on their joint behalf, the execution of that scheme which, out of twenty-three, was finally taken to be the best. Into the merits of that scheme we do not enter. It seems to be wholly unimportant whether it were the ablest scientific plan or the most notorious job and bungle that can be conceived. The result is much the same. The concentrated power of the opposition is in excess of the power of the promoters. So, we imagine, it always will be, as long as the *morcellement* adopted in 1872 is not removed. The strength of the numerous party which says "No" will always over-balance that of the feeble union that says "Yes."

It is probable that the experience of our railways was taken by the framers of the Act of 1872 as their guide. "Self-constituted bodies," they may have argued, "prepared their plans, raised their capital, and obtained their Acts of Parliament. Local Sanitary Authorities, especially as they have only to find the money in the pockets of the ratepayers, will do the same."

The analogy is superficial. Even as to the railway companies, the waste of money involved by allowing them to scramble helter-skelter for the traffic of the country has been estimated as from a fourth to a third of their entire capital. But these bodies had the strong incentive of the hope of gain. This the local authorities have not, or, at all events, ought not to have. It needs much to bring a Board of this nature up to the point of deciding on one measure out of dozens, of agreeing with rivals or opponents, and of finally applying for an Act of Parliament. Very often no one would be better pleased than the promoters of such a measure for the application to be refused. To expect the energy, the practised skill, and the fearless expenditure that characterised the early days of railway legislation from Mr. Stansfeld's "Sanitary Authorities," is puerile. Indeed, it would be a sore day for the ratepayers if such an expectation were fulfilled. But what is the alternative? Dead-lock.

Such is now the case with regard to the Thames Valley scheme. What is to be done? Who will recommend the various Boards to "try again?" Why should an application to Parliament be more successful in 1880 than in 1879? Or why in any subsequent year? Meantime what is to be done? Coerce the Boards? Who is to do so? Have they not a good reply? "It is not our fault," they will say, "it is that of the House of Commons. We did all that men could do. We gave up each something for the sake of common agreement. We called for the best advice. We took council of the Local Government Inspector. We spared no cost. We went to Parliament only to be ignominiously kicked out. We cannot and will not play this game year after year." The probability will be th

men of any spirit or capacity will refuse to serve on the Local Boards, and that the autonomous regulation of sanitary measures will, by-and-by, either be handed over to those who think they can make something out of their position as councillors, or collapse in utter hopelessness. What does the Local Government Board suggest by way of remedy? We predicted what has occurred.

## AUCTIONEERS.

AUCTIONEERS, as a class of professional men, are almost wholly a growth of quite modern times, though it is true that we find these persons mentioned at a very early period in connexion with certain practices common in ancient Rome. For among the Romans there were, broadly speaking, two classes of auctions, which may be called the civil and military. The first was the *auctio hereditaria*, which was the public sale of the property of deceased persons, when the sale was usually managed by a certain number of *argentarii*, or bankers, and the one of these who actually registered the sales and received payments was termed *magister auctionis*. The military auction, or the *auctio sub hasta*,—the auction under the spear,—was when military spoils were disposed of by the soldiers. A spear was erected in the ground, and at this spot the sale took place. But, as we have already said, it is during modern times, and to meet modern requirements, that auctioneers have become a very numerous body. So far back as the reign of Charles II., auctioneers were employed in this country, but it is the increase of wealth, the constant distribution of lands, houses, and goods, and the easiness of locomotion, which have caused auctioneers to increase and multiply as they have done during the present century. It was, therefore, by no means unfitting, and indeed was time, that a sketch of their history, position, and duties, should find its way into print, and Mr. Squibbs in his recently-issued work* has touched upon all these points compendiously and clearly. At the same time, there are one or two adverse criticisms to which this book seems to be open. For example, in chapter IX. we have "a short history of property law." Of course, some knowledge of the laws regulating the tenure and descent of real and personal property is necessary for the proper fulfilment of an auctioneer's duties, but in the first place it is wholly impossible in five-and-twenty pages to give even a satisfactory sketch of the laws relating to property; and, in the next, it is not sufficiently relevant to the duties and liabilities of auctioneers as to make it advisable to put into a small book twenty-five pages of matter which the reader will obtain much more satisfactorily from elementary legal works. Such sentences, too, as the following, we should have thought, have very little to do with public sales. "Society would have no existence without some code of civil government; property could not be acquired without some law to govern both its acquisition and its exclusive enjoyment." We expect next to be told that "an auctioneer must eat in order to live, and his business cannot be carried on without cash to pay the clerks," and so on. Nor is it strictly to the point to go into a description of the feudal system in Mediæval England, and when we find ourselves conveyed in a few pages from it down to Lord Cairns's Land Transfer Bill, we feel that we are having even more than a birdseye view of our law of property. Again, Mr. Squibbs will find that those who desire to refer to the legal decisions which he quotes will not regard his work with the friendly eye with which on the whole it deserves to be viewed when they discover the slips and inaccuracies which have crept in in regard to the references. We have, without seeking for such on purpose, but merely in going through this work, marked half a dozen, and we should be able to find a whole dozen by seeking for further slips. Thus, on page 49, we find the case of Sykes *v.* Giles referred to Meeson & Welsby's Reports without any one of the sixteen volumes being given; and on page 67 we find the reference to the case of Parker *v.* Farebrother as being C. L. R. &c. 1—323, which we suppose, from knowing something of legal matters, means the first volume of the Common Pleas Series of the Law Reports, but which would certainly be a regular puzzle for the non-legal reader.

* Auctioneers: their Duties and Liabilities. By Robert Squibbs, Auctioneer. London: Crosby Lockwood & Co. 1879.

But it will not be out of place to give one or two of the leading propositions in regard to auctioneers' duties and liabilities which have been formulated clearly and distinctly by means of judicial decisions. A large number of these decisions have been satisfactorily collected in Mr. Squibbs's work, and form indeed the most useful part of this book.

One of the principles which may be first noted, since it is connected with the initial part of the auction, is one which has twice been the subject of legal decisions,—first of all, a good many years ago; secondly, in the year 1873. It is that an advertisement of a sale is a mere declaration, and does not amount to a contract with any one who may act upon it, nor is it a warrant that all the articles advertised will be put up for sale. In this instance the sale was at Bury St. Edmunds. A commission-broker went down from London on the third day, and found all the lots were withdrawn, and therefore brought an action against the auctioneer for loss of time and expenses, but the latter obtained a judgment on the above principle.

Another point of interest is that a bidder may always retract before the hammer is down, so that once a bid is not necessarily always a bid. In the case in which this was decided, a buyer bid 40*l.* for the article which was put up, and then asked whether the auctioneer would warrant its weight; upon his refusal to do so the would-be purchaser declared he would not have it. It was, nevertheless knocked down to him; but when the matter came before the law-courts it was decided that he had full liberty to retract if he desired, so long as the hammer had not fallen to his bid.

Another point of some importance is the difference in regard to the power of an auctioneer to make a binding contract at and after a sale. We need at this time of day hardly point out the cardinal axiom, settled by several cases, that an auctioneer has authority to make a binding contract between seller and buyer, by inserting the buyer's name in his book. But it is important to notice that this authority does not continue after a sale, so that if some lots are not disposed of, and after the sale a person enters into a contract with the auctioneer to buy the unsold lots, or some of them, the latter must obtain the purchaser's signature to the contract, otherwise the vendor will be unable to maintain an action against him for the price agreed upon. In the instance before us, an auctioneer put up some timber for sale, several lots of which were ultimately not sold. Thereupon, some days after the sale, a person named Carr called on the auctioneer and selected two of the unsold lots, which he agreed to purchase, and the auctioneer then, in Carr's presence, wrote his (Carr's) name in the sale catalogue opposite these lots. But, said the Court of Exchequer, this was not a binding contract, for "here the auctioneer signed Carr's name, not purporting to act for him, but as the person who sold the goods." And here we may conclude with a final and important principle to which the case leads, namely, that if by any inadvertence at an auction the auctioneer does not make a binding contract between buyer and seller, so that the latter, for instance, fails to obtain the price of the house or goods sold, the auctioneer is liable in damages on the ground of negligence. The leading and last case upon this point was decided in 1874, and the main fact was, that the auctioneer's clerk signed the purchaser's name in the sales-ledger, which contained nothing but the number of the lot and the subject-matter of such lot: hence there was no sufficient connexion with the catalogue and conditions of sale as to make a binding and legal memorandum. Hence, too, the vendor was defeated in an action against the purchaser, and immediately brought his claim for damages against the auctioneer, the Court deciding that such an action was quite available.

With this proposition, that the auctioneer is liable for any negligence in the performance of his duties, we may conclude this paper, since it would not be fair to Mr. Squibbs to take all the useful or interesting parts bodily out of his book.

There is only one further point which we would notice, and that is Mr. Squibbs's complaint that the 10*l.* annual licence is too high. The writer points to solicitors, who pay 9*l.* or 6*l.*; but he should bear in mind that before a solicitor can have his name on the rolls he has to pay other fees; so has a barrister; and both of these have a long and expensive technical education to go through. Without in any way underrating auctioneers, we may fairly say that so long as a man has had a good, solid, and broad education, and is quick in taking note of what passes around him, and in assimilating information, he requires very little of the technical training which is necessary for the lawyer, the doctor, or the architect.

## THE NEAR FUTURE OF VENICE.

IT is at a moment when all of us are disposed to look seriously upon the near future of our own country, when our Prime Minister, on a recent important occasion, in speaking of the prosperity of England, referred to the past power of our old enemies the Dutch, and the vanished splendour of the home of his ancestors, that the question of the near future of Venice has been brought under the consideration of patriotic Italians and the world at large; a question interesting to ourselves at the present moment from its bearings on our own position.

The past of Venice has been a maritime one; her future equally depends upon the sea, almost entirely deserted by Venetian ships since the fall of the republic at the end of the last century. Nearly 400 years ago, when Venice was at the height of her prosperity, the future of the state was looked forward to with apprehension by the long-headed councillors of the Doge, and the strange position of the city, which, from its very foundation, had served as its protection, it was seen might in time be destroyed.

Sismondi, in his fascinating pages, has long since made us all familiar with the early commencement of Venice, its situation, the formation of the lagoons, and of the numerous islands lying at the united mouths of the Adige, the Brenta, and the Piave. In the early years of the sixteenth century, this position of Venice, situated in the shallow lagoons, yearly made shallower by the continual deposits washed down by the rivers, raised the fears of the famous engineer, Fra Giocondo, who, by his precautionary measures by cutting deep water-channels, saved Venice from an early solution of the problem of her near future. Vasari tells us of this incident,—one which, by the way, was not referred to in the course of a valuable lecture recently delivered by Sig. Fambri to the Venetian *circolo artistico* on "The Future of Venice."

It was with an interesting quotation from an early source (the oldest known document relating to Venice) that Sig. Fambri commenced his lecture; the letter from Cassiodorus, secretary, in the sixth century, of the wise and virtuous Theodoric, to the Venetians, asking their assistance; the orator, forgetting the argument of his letter, describes somewhat naïvely to the Venetians themselves, to whom it is addressed, the strength of their position, their industry, activity, and liberty. In no "other country do riches and poverty," he writes, "live on such equal terms. The same food is supplied to all tables, the same thatch covers each house. The commerce of salt is your principal occupation, and the instruments necessary for this take with you, the place of the plough and the sickle."

It is not our purpose to enter into the discursive, even if interesting, details of Sig. Fambri's lecture (printed at length in the *Gazetta di Venezia*); we come, therefore, to that portion more directly bearing on the question, and the criticism of Sig. Fambri on the views recently expressed of Sig. Manfrin regarding the "Future of Venice."

Passing rapidly over the conclusive details of the statistics of Venetian industry, one point is beyond question proved,—that the Venice of 1872 is in a worse condition than that of 1845, even when under the detested Austrians; while further statistics unmistakably show the by no means comforting fact that the sum yearly paid in town dues on articles of consumption taken into the city exceeds by half a million of francs (some 20,000*l.*) that of any other city in the province of Venetia.

To these facts,—dispiriting signs for the future,—what remedies are proposed by Sig. Manfrin? According to him, the city of Venice shows in the present day an inclination towards agricultural pursuits, which have so long formed the wealth of the *terra firma* provinces, and a tempting picture is held up in the success of the project of draining the Haarlem Sea in Holland. With this view, the shallow *lagune morte* (those near the mainland, and

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entirely unaffected by the tide, Venice itself being situated in the *laguna viva*) are to be filled up and used for cultivation. By this means there would take place an active immigration that would restore to the capital the commerce of past days, and thus soon would be noticed a gradual and material transformation. Incidentally, Sig. Manfrin warns the Venetians from relying too much on strangers. They, he says, do not raise in any important degree the economic level and still less the moral.

Criticising this proposition, Sig. Fambri entirely puts aside the idea of filling up the lagoon (with an area of something more than five hundred millions of square mètres of water surface), to carry out which project, he tells us, would require the finding, bringing, and distribution of some two millions of cubic mètres of materials,—an idea worthy the conception of a Jules Verne alone, and demanding an enormous outlay of capital. There are others, again, who speak of allowing the rivers to do their work of drying up the lagoons by their annual deposits of alluvium; this process, it must not be overlooked, however, would take centuries to carry out.

To all such proposals, Sig. Fambri objects, and very decidedly states as his opinion that the idea of filling up the lagoons will never be carried out, at the same time urging that this view, though held by many others, should not prevent the project from being properly studied.

Two centuries ago Benedetto Castelli, the friend of Galileo, prophesied that the insular position of Venice could not be insured for ever, nor the lagoon be kept open. He added, however, that the danger might be staved off for "many many centuries." With such a prediction from so experienced an authority the more patriotic lovers of water-girt Venice may rest satisfied.

With, at the utmost, a third of the expense necessary at present to enlarge the port of Genoa, the Porto del Lido may be re-opened and the lagoons rendered as accessible as those of Malamocco. The channelling of the rivers and the clearing of this ancient gateway are a condition, not alone of the future prosperity of Venice, but of her very existence; a complete freedom of entry, and the re-establishment of all the accessories of the old commerce are as equally urgent, and then the symbolic ceremony of Ascension-day, and the solemn marriage of the Doge with the Adriatic may again be fraught with as much meaning as in the days of the past. Then the royal yacht of King Umberto will be able to land at the famous Piazzetta, as did, in the old days of the glorious past, the galleys of Enrico Dandolo and Sebastiano Venier.

What is necessary for the future prosperity of Venice is, in the opinion of Sig. Fambri, the production of those objects indispensable for the refinements of every-day life, objects which render our existence convenient and agreeable; an opinion amply justified by the example of Paris in its manufacture of such *objets* which may be said to form, at least, two-thirds of the extraordinary industry and riches of the capital of France.

Venice has inherited from the past more than a usual share of noble monuments, attracting yearly many thousands of visitors, but Venice has inherited besides more than one source of important revenue. The glass, for which she has been famous since the Middle Ages, has invaded the world; her mosaic work is renowned, her Mediæval and Renaissance furniture is admired by the numerous visitors, and the beautiful lace which (thanks to the efforts, if we mistake not, of Lady Marian Alford, Lady Layard, and others) now employs several thousand women who produce work, ranging in value from the modest sum of three halfpence a yard to eighty and a hundred pounds, is justly prized by the world. All that is necessary to render active these artistic industries, so well suited to the good-natured, light-hearted, Venetian population, which Goldoni has with such skill portrayed in more than one of his brilliant comedies, is the modern spirit of association.

It was with truth that the late Massimo d'Azegli remarked, that, Italy formed, the Italians must be made; to the Venetians this is particularly applicable. Venice, in her struggle for supremacy, received more than one severe blow: the conquest of Constantinople, the discovery of the Cape of Good Hope, the baseness of a Manin who allowed the republic to fall, alone redeemed by the patriotism of that other Manin who but yesterday, as it seems, tried to raise the republic to its old height, and partially succeeded.

On the re-formation of the Porto del Lido hangs, so to speak, the problem of the near future of Venice; her geographical position is secure, safer even than ever, called upon to play an important part in the commerce of the East; Lesseps has already virtually restored to Venice all that the discoveries of Diaz and Vasco di Gama deprived her of.

The *Edinburgh Review*, in a recent article, "Venice Defended," has praised the custom of the old Venetian families in sending their sons out into the world to make them men and merchants. But a maritime life, though the sea may be regarded as the principal field of action for the Venice of the future, would come less easily to the Venetians than might be at first supposed. When the republic was destroyed, all activity was suspended. Commerce, when happily pursued, consists of a multiplicity of well-organised relations, and is brought to a stand-still when some sudden shock breaks but a few threads of its complicated machinery. To the destruction of the republic came the long torpid period of the first Empire; the stout timbers of the laid-up vessels of the state were riddled by the worm, and the traditionary occupation of the Venetians interrupted by the lapse of a comparatively idle generation, could not be taken up again.

Venice must begin again from a new point, not alone relying on her past inheritance of the sea, but on her art and industry to help her out in the problem of her future, whose past has been rendered so glorious by the serious art of Titian and Giorgione, and the gayer and more attractive traditions of Paul Veronese; the first foundations of this future are already laid in the noble city in which so much romance has been centered, in the art and industry which only recently have been carefully described in the pages of M. Charles Yriarte's capital work on Venice, by a portion of a review of which, by Philippe Burty, we cannot do better than close this article:—"The brilliant and delicate splendour of her atmosphere, the courtesy of her inhabitants, the silence of her thoroughfares, without horses and without children (the children are all brought up on *terra firma*), the grace of her very poverty, the complaisance of her learned librarians and the curators of her museums, the facilities of her material and intellectual life, left the sweet and well-ordered impression upon me of a sort of vast convent, similar to the one described by Rabelais under the name of 'L'Abbaye de Thélèmes.' One must think of Venice often, talk about her in low tones with a friend,—and not look at her in photographs."

*Treviso.*

## NEW GREEK CHURCH, AND NEW SYNAGOGUE, BAYSWATER.

VISIT OF THE ARCHITECTURAL ASSOCIATION.

ON Saturday last the Architectural Association visited two buildings of exceptional interest, both situate in Petersburg-place, Bayswater.

The first building visited was the new Greek Church, now practically completed structurally, although much remains to be done in the way of internal fittings and decorations. The decorative portions of the work will, however, be taken in hand as occasion offers after the opening, which is fixed to take place at Easter. The building, of which Mr. J. O. Scott is the architect, is one of extreme interest. It consists on plan of a Greek cross, the central area being covered by a hemispherical dome, 42 ft. in diameter. This dome is lighted by twelve small windows, and to the height of 2 ft. above the window-heads, is of brickwork, the upper portion being entirely of concrete composed of Portland cement, gravel, brick ballast, stone chippings, &c., in proportions which were determined by a careful series of experiments. The concrete portion of the dome is 14 in. thick at the springing, and 9 in. thick at top. The height from floor level to underside of centre of dome is about 75 ft. The church is not "orientated," but stands nearly north and south, the altar being placed in the centre of a semicircular apse formed in the northern arm of the Greek cross of which the plan consists. This recess is flanked on either side by a shallower recess, the three recesses all communicating. The semicircular arches spanning the four arms of the cross are of concrete, the span being that of the diameter of the dome, viz., 42 ft. The eastern and western arms of the cross are, like the northern arm (in which the altar recess is placed) comparatively shallow, but the southern arm is more deeply recessed, and is crossed by a gallery, partly beneath which is the entrance vestibule. The total length from north to south is 119 ft. 4½ in., the extreme width being 88 ft. 9 in. The whole of the surface of the dome will ultimately be richly decorated, most probably in mosaics, and the pendentives and the concrete arches spanning the arms of the cross will be decorated in like manner. Nearly the whole of the wall surface internally will be covered with various-coloured foreign marbles, and what brickwork is intended to be left exposed internally is red, relieved with Bath stone. Beneath the drum of the dome is a cornice of red terra-cotta. Externally, the building is of yellow stock bricks, relieved with red terra-cotta string-courses and bands of red brickwork. The clerk of the works, Mr. Thomas Leigh, received the visitors, and was good enough to explain in detail many matters into which we will not enter at the present time, hoping shortly to have an opportunity of fully describing the building. The contractors are Messrs. Kirk & Randall, of Woolwich, their foreman being Mr. Leake.

At the new Synagogue, the visitors were received by Mr. Audsley. In our last volume (p. 779) we gave a perspective view of the exterior of the building, which is now nearly completed, with the exception of the decorative work, the greater part of which is deferred for the present. The synagogue has a frontage of about 71 ft. to Petersburg-place, and a depth of about 100 ft., and is well lighted on all four sides. The main entrance is by a recessed porch in the centre of the west frontage, flanked by two turrets which terminate with minarets. There are, in addition, two subsidiary entrances at the north-east and south-east corners. There are four staircases, leading to the galleries. The dimensions of the building on the ground floor are 65 ft. by 61 ft., and on the gallery level, 83 ft. by 61 ft., and it is calculated that the entire building will accommodate about 900 worshippers, although seating for a much smaller number is provided in the first instance. The sittings are of pitch-pine, and the gallery-fronts, doors, and other joinery work are of the same wood, having a remarkably beautiful "figure" or grain. The whole of the pitch-pine used came from Liverpool, Mr. Audsley stating that pitch-pine of good quality was scarcely to be had in London, although it was always to be obtained in Liverpool. The style is Byzantine. The internal arrangements differ somewhat from those which usually obtain in the orthodox London synagogues, the ark being in the nature of a shrine placed in an apse or vaulted recess. The ark and tribune or reading-desk are of marble and Caen stone, the stone wherever used being coloured and decorated with gold-leaf. The exterior of the building is of red brick, with dressings of red Mansfield stone. Mr. N. S. Joseph, of Coleman-street, and Messrs. Audsley, of Liverpool, are the joint architects. The works of the substructure have been carried out by Messrs. Adamson & Son, of Turnham-green, and those of the superstructure by Mr. George Shaw, Mr. Petheridge being general foreman.

## LONDON STREET ARCHITECTURE.

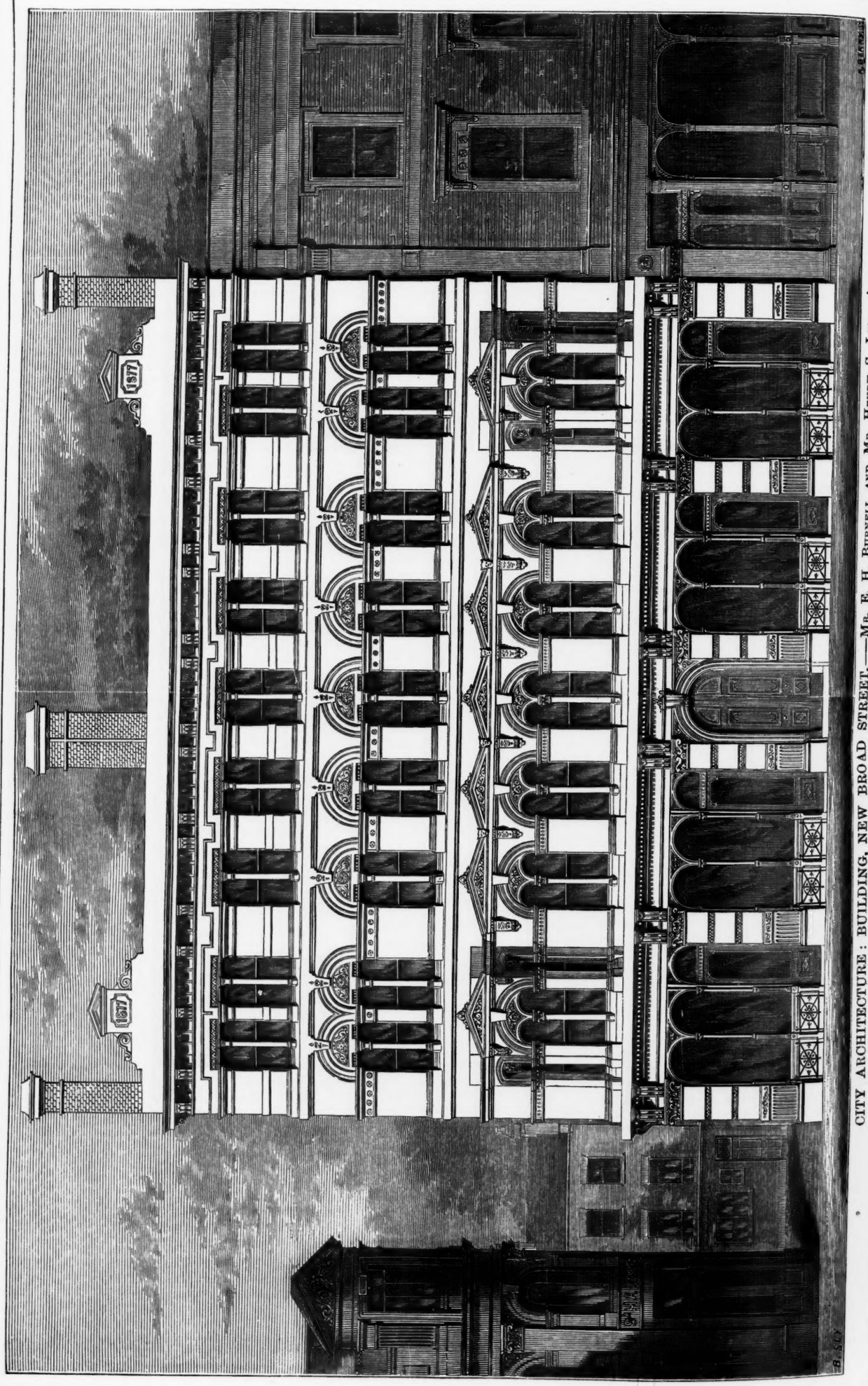
NEW BROAD-STREET, CITY.

THE building,—a view of which we give,—is erected over the Metropolitan Railway, which passes under the eastern end of New Broad-street, City, the Metropolitan Station being erected over the railway on one side, and this building on the other, immediately opposite.

The foundations of the building, therefore, consists of three massive wrought-iron girders, each about 5 ft. deep, thrown across the railway and resting upon the embankment-walls at the east and west ends of the structure, and upon three massive iron columns placed intermediately about one-third the length from the western abutment wall.

The weight of the building has been of necessity adapted to the safe load these girders (previously erected by the railway company) would carry (viz., about 300 tons each), for which purpose the weights of the walls and floors have been carefully taken out and calculated, and the height of the building was kept down to suit, it having been originally intended to have another story. The staircase, intended to be of stone, is made of oak, for lightness and strength.

The building is planned to contain four shops on the ground-floor, and twelve sets of offices on the several floors above. The arrangement of




CITY ARCHITECTURE: BUILDING, NEW BROAD STREET.—MR. E. H. BURNELL AND MR. HENRY S. LEGG, ARCHITECTS.

THE MANCHESTER HOTEI, ALDERSGATE STREET.——MESSRS. BATEMAN AND CORFE-I, ARCHITECTS.

plan is simple. A staircase, placed in the centre at the rear of the entrance doorway, leads up to a corridor running longitudinally in the centre of the building (lighted by windows at one end, and by the centre staircase windows midway).

The divisional walls, including chimneys, are all carried by strongly-constructed wrought-iron girders running transversely across the building, and bearing on the three main girders previously mentioned. The whole of the front is executed in Portland stone.

It will thus be seen that the railway company utilise a valuable frontage, and obtain a large rental, viz., upwards of 1,000*l.* per annum, as ground-rent, being at the rate of about 10s. per foot over the superficial area thus realised, facing, as the building does, an important thoroughfare, and being in close proximity to four railway stations.

These offices were designed by, and erected under, the joint superintendence of Mr. Edward Burnell and Mr. Henry S. Legg, architects, Messrs. Newman & Mann being the builders. The carving was executed by Mr. Bradford, of Kennington.

## THE MANCHESTER HOTEL, ALDERSGATE STREET.

A VERY large building for the Manchester Hotel Company has been in progress for some time in Aldersgate-street, close to the Metropolitan Railway Station. It is Gothic in style, with mullioned windows, gables, finials, and a clock-turret at the angle. Our engraving represents the Aldersgate-street front and a portion of the return side, but this extends far down the side street, Long-lane. Messrs. Bateman & Corser are the architects, and Mr. Brass is the builder, the amount of the first contract being about 40,000*l.* Mr. Goodwin is the clerk of the works.

The old line of frontage to Aldersgate-street and Long-lane has been considerably set back to give a width of 45 ft. to both streets, and the circular corner set back 22 ft. to facilitate the great traffic to the adjoining Meat and Poultry Markets, and the railway station, also the large business traffic in the Barbican. The building will have two other street frontages to Cloth and New streets, the site being nearly isolated. On the ground-floor is a lofty coffee-room, 50 ft. by 32 ft.; a smoking-room, 60 ft. by 24 ft.; commercial-room, 35 ft. by 28 ft., with corridors of communication.

Towards Aldersgate-street and Long-lane are retail shops; that at the corner of Long-lane and Cloth-street it is proposed using as a *restaurant*, which will greatly reduce the rental chargeable to the hotel.

On the first floor are two billiard-rooms, one public and the other private, with separate staircase not communicating with the sitting and bed rooms.

The building will contain upwards of two hundred bed-rooms, exclusive of servants' accommodation and sitting-rooms.

In the basement are the necessary servants' offices, stores, &c., with coal-vaults under the pavements. The kitchen and culinary offices are on the top story, with necessary supply and service-lifts. A large luggage-lift is provided adjoining the central staircase from the basement to the top story. The building will be fitted with baths, warming apparatus, and other modern appliances.

The exterior is of red brick walling, with stone dressings to openings, and other decorated finishings, as shown in the view.

The hotel is being erected by the Manchester Hotel Company, the freeholders being Messrs. Tubbs & Lewis, of Noble-street, City, and is intended to supply a long-felt want of hotel accommodation for commercial men and others having business in the City. The site, being in the centre of large and increasing warehouse accommodation, near the meat and other markets, and close to the Metropolitan Railway Station, is most conveniently placed.

A large geometrical staircase in stone from bottom to top of the building, is a good piece of mason's work; we should prefer, nevertheless, to see some additional support given to the outer ends of the steps.

During the progress of the building some little change has been made in the arrangement of the angle, the doorway shown there having been removed to the front in Aldersgate-street, and the angle itself being used as a shop-front. The architects preferred that our view should show the original design.

The mass of the building in Long-lane is completed externally, but the upper part of the Aldersgate-street front has been delayed by the objection of neighbours, a cause now too often interfering with the architecture of our streets.

## THE ART DECORATION OF THE STAGE.

THIS was the subject of a lecture delivered on the 6th inst. by Mr. Walter James Allen, at a meeting of the Society of the Fine Arts, Conduit-street. The Marquis of Townshend presided during the earlier part of the meeting, and in taking the chair prefaced the lecture by a few remarks in reference to the work of the Society, with which he has lately become connected as a member of the Council. His lordship observed that the society was doing a useful work in promoting the study and appreciation of the fine arts. All classes of the community must receive benefit by the promotion of the objects which the society had at heart, for art appealed to the highest feelings of which human nature was capable. Next to Religion there was nothing so elevating as Art. We lived in days when we were likely to see the poorest classes appreciate and enjoy thoroughly the noblest works of art.

Mr. Allen then proceeded with his lecture. He commenced by saying that in the time of Elizabeth, the decoration of the stage was very poor, the only accessories consisting of hangings of tapestry, the floor being strewn with rushes. Most of the halls of the different inns of court had been the scenes of dramatic success. In such halls the stage merely consisted of a platform, and the entrances and exits were by steps at each end, so that the performers had to enter and leave the stage in the sight of the audience. It is strange that such a state of things could possibly have existed,—the absurdity seems so great for an actor, after a great burst of pathos, to calmly leave the platform or stage and deliberately walk down-stairs. There could be no doubt that the scenes of the modern theatre help the illusion greatly, breaking, as they do, the actor away from the spectators. But the art decoration of the stage must have advanced rapidly, for the Globe Theatre in Southwark was destroyed owing to the circumstance that Shakspeare's "Henry VIII." was placed on the stage with all necessary decorations, so complete, in fact, that real cannon were fired, and some of the real wadding alighting on the "thatched hide" with which Taylor, the water-poet, told us the building was covered, the theatre was burnt down in a very realistic manner. The art decoration of the stage in the reign of Queen Anne must have been in a curious state. Booth, who was the original Cato in Addison's tragedy of that name, is referred to in Pope's line as appearing in—

"Flowing wig and lacquer'd chair."

Fancy the stern Roman in a Ramillies wig and a chair of the *rococo* sort of Queen Anne's time! It was not necessary to say much of the progress of stage decoration between the time of Queen Anne and the latter part of the last century. We looked with wonder at the portraits still preserved to us of the great actors of the period. To think of Macbeth arrayed in scarlet coat, blue facings, powdered wig, jack-boots, spurs, &c., and Hamlet in black court dress! Canaletti supplied the scenery for His Majesty's Theatre in the Haymarket, when George III. was king, as did also Paul de Loutherbourg. The scenery in those days depended more on the artist than on either the property-man or the carpenter, though in turning up the different gazettes and newspapers between the middle and the end of the last century, we find constant descriptions of the most gorgeous scenery for the pantomimes, where the property-man and the carpenter must have done very important work. To the late Madame Vestris must be given great praise for having done immense service in this important art, by her wonderful taste and judgment, as shown in the plays produced in the different theatres under her management, though Mr. Allen suspected that that great master of poetic fancy, the veteran Planché, had a great deal to do with these graceful productions. But the revivals presented to the public by the great tragedian, William Charles Macready, must still be very vivid in the memories of many yet living. The arrangement of the vineyard scene in Handel's "Acis and Galatea" was in its way perfect. The whole of the vast stage was brilliantly illuminated. The scenery, supplied by those giants in art, Clarkson Stanfield and David Roberts, was of an order never seen before, and probably never equalled since. To Macready must be given the praise of having brought forward Stanfield and Roberts, who elevated scene-painting to an art, and who made it a splendid field for landscape-painters. Great as they were, we have still spared to us some who are not unworthy successors, — such as William Beverley, William Callcott (whose scenery at the Lyceum, under the management of Madame Celeste, was perfect). Again, Hawes Craven at the Lyceum is setting an example of true art which is a great satire on the intense and vulgar realism of some other theatres. At the Strand Theatre, where the stage is very limited, the scene-painter, H. P. Hall, manages to secure an effect of space which shows in a thorough manner the knowledge of his art. The late lamented Samuel Phelps thoroughly understood the art-decoration of the stage, and at Sadler's Wells, under his management, the scenery was always perfect, sound in its principles, and never too glaring. The dresses were archæologically correct, and in perfect harmony. Contemporary with Samuel Phelps was Charles Kean, a highly-cultivated gentleman, and, in the opinion of many, a very great actor. Of his great abilities there could be no question. At the Princess's Theatre he produced a series of Shaksperian revivals which for magnificence have probably never been surpassed. The Banquet Scene in Byron's "Sardanapalus," the Rising of Phœbus in the "Winter's Tale," Cardinal Wolsey's Revels at York-place, were the talk of the town; but the art-decoration was overdone. The delays between the acts, the time taken to work the different scenes, and, if the expression might be allowed, the monotony of splendour, all combined to break the interest of the play itself, and in reality the gorgeousness of the frame entirely killed the picture. But in some of the productions at the Princess's under Charles Kean there was shown a rare appreciation of the true art-decoration of the stage. Of Mr. Fechter's archæological knowledge of costume the lecturer related the following anecdote:—When Fechter had the Lyceum Theatre, some years after his first performance in London, he went into the wardrobe, and, taking up a dress for a piece then being rehearsed, said, "For whom is this?" The reply was, "For Mr. So-and-so," who had to play a part in the piece. Fechter answered, "Yes, it is very pretty so far as it goes, but it goes rather too far. You have absolutely got a space of about 150 years in one costume! Give me a pencil and some paper." He sat down, and there and then drew the dress perfectly correct. In most theatres, the gas was either too strong for a light scene or too dark for a sombre one. But in the revival of Hamlet at the Lyceum, by the judicious lowering of lights in some parts and by raising them in others, the production of what may be called accidental effect is most successfully attained. People went to the theatre to see the acting, to listen to the play. The acting and the play ought to be as planets, the scenery and decorations as satellites, as in a picture the background should be subservient to the subject, and ought to help to produce the harmony necessary for the general effect. But although good acting would cover almost any amount of bad scenery, theatrical managers might, at a much less cost than was now incurred, attain much better results than were seen at present, if in every theatre could be appointed an artist (using the word in its broadest sense) who, having a keen appreciation of art in its various phases, and working cordially with the principal performers, could direct the action of the piece completely, and arrange the grouping so that the stage picture should look unstudied, and help the action of the play. All art was careful art, and the more careful the art the more it was hidden.

Mr. Cave Thomas, who took the chair in succession to Lord Townshend, moved, and Captain Mercier seconded, a vote of thanks to Mr. Allen for his interesting lecture.

**National Art Training School, South Kensington.**—The annual prize of 10*l.*, granted by the Royal Historical Society for an essay on Art History, to be competed for by the male and female students of the above school, has been awarded to Mr. W. J. Merritt, for an essay "On the Influence of Greek Art in Italy, France, England, and Germany, from 1300 A.D. to the End of the Eighteenth Century."

## ARCHITECTURAL PUBLICATION SOCIETY.

### THE DICTIONARY OF ARCHITECTURE.

A SPECIAL meeting of the subscribers of this society was held on Wednesday afternoon last at 9, Conduit-street, Mr. John Whichcord in the chair.

Mr. Arthur Cates, hon. sec., read the report of the Committee, which contained the following passages:—

At the Special Meeting of the Subscribers, held May 21st, 1874, a series of resolutions was passed unanimously authorising the Committee to proceed with the work of carrying on the "Dictionary of Architecture" in accordance with the recommendations contained in the report submitted to and accepted by such special meeting. Acting upon this authority the Committee proceeded to instruct Mr. Wyatt Papworth to renew his labours on the basis of the new terms so agreed upon, and in result there was issued at the commencement of last year a part or rather volume of text comprising in 264 pages the letters M, N, O, with Title-pages, Table of Contents, and Indexes to the Plates of Illustrations, for binding in several volumes the "Dictionary" from its commencement.

The audited balance-sheet, dated June 27th, 1878, appended hereto, sets out the financial condition of the Society after the entire cost of producing and issuing the letterpress above mentioned had been discharged.

It appears therefrom that the balance in hand in April, 1874, having been 1,290*l.* 7*s.* 11d., and the receipts up to June 1st, 1878, 671*l.* 5*s.* 6d.; the total available capital was 1,962*l.* 3*s.* 5d., while the expenditure having been 849*l.* 15*s.* 9d., the balance then remaining in hand and available for further proceeding with the "Dictionary" was 1,112*l.* 7*s.* 8d. Thus, without any call on the old subscribers, the production of the volume last issued and the incidental expenses of four years have only reduced the capital by 178*l.* 0*s.* 3d.

All debts and outstanding liabilities having been cleared off, the entire balance of 1,112*l.* 7*s.* 8d. was available for the continuation of the work. This is the more satisfactory, since not only, as authorised at the special meeting, has the expense of producing the MS. been considerably enhanced; but in the printing and all other departments, the cost has considerably exceeded that incurred in former years, and on which the estimates of the cost of completion were based.

The result, which is shown on the balance-sheet, has not been obtained without much labour and attention, and the committee wish to express the obligation of the society to two or three members by whose exertions the accession of several new subscribers has been obtained, and to express a hope that the success thus shown will induce others to a like exertion, so that the next financial statement may present a result as satisfactory as that now submitted.

There is still a wide range within which the "Dictionary of Architecture" may be found to be acceptable, and it rests only with the members of the Society to make it known, and to secure the disposal of the few copies remaining available for new subscribers.

The committee would urge on those who, possessing the earlier issues, have not continued their subscriptions,—not to delay acquiring those portions deficient,—since, as the stock diminishes, it has been found expedient to raise the price.

In order to afford opportunity of acquiring the continuation to those who might not be entitled otherwise to receive it, the Committee fixed the price of the new part, M, N, O, at 2*l.* 12*s.* 6d., and determined that the annual issues, which hitherto had been charged at 1*l.* 1*s.*, the former subscription rate, should, for the future, be charged 1*l.* 5*s.*; the subscription for the "Dictionary," so far as funds may be provided for its production, being in one sum, 21*l.*

Satisfactory, from one point of view, as the condition of the Society may from the balance-sheet appear to be, the experience gained by the production of the letters M, N, O, and the commencement of P, has convinced the Committee that it is only by a careful system of condensation that it will be possible to approach a realisation of the anticipation formed in 1874, and submitted to the special meeting on May 21st of that year; and much must depend on the additional funds obtained by further disposal to new members of the stock. Under any circumstances, however, the condensation referred to appears to be essential, as the only means by which the work in hand can be completed within reasonable limits of time and expenditure, and with any proper relation to the funds likely to be available; the Committee, therefore, intend, with the approval of the members, to devote their best endeavours thus to attain this end.

In recent years, in almost every report it has been the sad duty of the Committee to lament the loss of some earnest friend or valued contributor to the work, and this occasion forms no exception. The death of Mr. Sydney Smirke, R.A., will be in the memory of the subscribers: his earnest labours on behalf of the Society from the period of its foundation, his kind contributions of sketches for the plates of illustrations, the care and learning displayed in the revision of the MS., and the attention paid to the interests of the Society in fulfilling the duties of treasurer for so many years, make his loss one deeply to be felt.

More recently death has removed another valued friend and assistant in Mr. Charles Charnock Nelson, whose careful consideration and condensation of articles and critical perusal of the "Dictionary" during revision, have, from the commencement of the work, been of the highest value; while the conductor of the text testifies to the valuable information obtained from Mr. Nelson's extensive reading in foreign as well as English literature, and for the sources pointed out by him for the amplification, elucidation, and completion of articles.

Mr. Wyatt Papworth continues his labours in the preparation of the manuscript for the continuation of the "Dictionary"; much of the letter P is printed, while a further quantity is ready for setting up. These labours, it is needless to say, are very onerous; so that any contributions to the text will be thankfully received by him; and as the number of the revisers of the sheets is now seriously diminished, he would gladly take advantage of further assistance, if any subscriber will kindly offer his services for such an occasional purpose.

The Chairman formally moved that the report and balance-sheet be adopted, and that the committee be authorised to proceed as therein recommended. The motion was seconded by Mr. O. Hansard, and led to a long discussion, the opinion being very generally expressed that the "Dictionary" should be finished with the same degree of completeness of information and copiousness of illustration that characterised the earlier parts. It was also the opinion of some speakers that the subscribers would rather increase their subscriptions by a guinea or two than that the work should not be completed in a manner worthy of the profession and of the Society.

The report was adopted, on the understanding that the views expressed during the discussion would be further considered by the Committee.

The officers and committee were then re-elected, Professor Hayter Lewis being elected hon. treasurer in the room of the late Mr. Sydney Smirke.

## THE SOCIAL NECESSITY FOR POPULAR AND PRACTICAL TEACHING OF SANITARY SCIENCE.

A PAPER on this subject was read by Mr. Josh. J. Pope, M.R.C.S., at the Society of Arts, on the 5th inst., Dr. Richardson in the chair. In the course of the discussion which took place at its close, Mr. Hale said he considered it a matter for regret that none of the gentlemen who came forward to teach sanitation were able to point to any house which the public might inspect as an example of what a healthy house should be.

The Secretary (Mr. Wood) said it might be interesting if he mentioned what the Society of Arts had been trying to do in connexion with this subject. In 1876, an examination in domestic economy, which included health, clothing, housekeeping, thrift, and cookery, was instituted, and in that year there were thirty-seven candidates, eight of whom were examined in health; in 1877, the numbers rose to ninety-seven, thirty-five taking health as their subject; and, in 1878, there were 170, of whom sixty took up health. A considerable number were students from the Birkbeck Institution, who had profited by Mr. Pope's instructions. The domestic economy examinations in the Education Code were limited to girls, whilst the Society's examinations were open to both sexes. The reasons for the change in the conditions of the Prince Consort's prize were these. The subjects of examination were of various degrees of difficulty, and it was thought by the Council, after a good deal of discussion, that the subjects included under domestic economy were of rather an easier nature, and perhaps lent themselves more readily to cramming than some of the other subjects, such as arithmetic or languages. It was, therefore, decided that the domestic economy subjects should not count equally with the other subjects.

Mr. C. Cook said that only last week there was a letter in the *Times* complaining of the bad ventilation of Westminster Hall. He hoped that in the New Law Courts this would be seen to. There was a good plan of ventilation in the British Museum, the opening of a door opened a ventilator, and the shutting of it opened another. He thought clothing was an important part of the subject, and asked what could be more ridiculous or unhealthy than a chimney-pot hat.

Major Webber remarked that few, if any, could claim that they had always lived healthy lives, or inhabited healthy homes; but, by coming there that evening, they showed that they wanted to improve. He quite agreed, however, that it would be a good thing if there were a range of dwellings anywhere suitable for those who could only pay a small rent, which could be pointed to as models of what such houses ought to be, and he was sorry that no such building existed. He remembered some years ago, when the Society appointed a committee for investigating the different kinds of sanitary appliances, it was suggested that one or two small dwellings should be built and fitted up with all suitable appliances would not be too expensive for ordinary use. It had always struck him that this was one means of instructing the public, which was much wanted, and if money were forthcoming, he thought it would be better spent in that way than in giving prizes. In the Exhibition of Paris, in 1867, there was a very useful instance of this kind of thing, in a set of model barracks, showing how such buildings could be made healthy even when crowded with men.

Mr. Blashfield thought it would be extremely difficult to lay down a law as to the building of houses. The scheme of building round London was of so independent a character that it would take a very powerful Act of Parliament to deal with it. Mr. Chadwick, some years ago, when this matter received a great deal of attention, laid down some very useful schemes for healthy dwellings of a small and cheap character, and from that time cottage building had improved to a considerable extent. It would be invidious to mention names, but in the Midland counties there were several noblemen who were building cottages of brick and stone, well drained, and fit for people to occupy. There were also in some of the new houses being built in London excellent modes of ventilation and drainage adopted, but these were not all alike. New schemes were being brought forward almost daily, and it would not do to make one unvarying rule. Something of this sort was going on at Cambridge. There was a great scheme for ventilating the Post-office, which he had been informed was a very efficient one. Every day new schemes were proposed, and were discussed at the Institute of British Architects and similar places. Although they were often defective, he believed houses were of a better character than they used to be. An exhibition of the improvements that had taken place with reference to drainage, ventilation, gas, and water would, he thought, be very useful.

Mr. Meyer thought that good arrangements for working-class dwellings could be seen in the Peabody buildings for artisans' dwellings. He had seen it reported that the rate of mortality in those houses was less than elsewhere, and it might, therefore, be taken for granted that they were properly constructed with regard to health. Still this was rather travelling away from the subject, which was how to bring the knowledge of health within popular appreciation. The suggestion made by Mr. Pope that the clergy might help, was a very good one, and if they could induce ladies to make themselves acquainted with the laws of health, and to spread that knowledge among the poor they visited, they would be doing a great deal of good. He would also suggest that it should be compulsory on those who managed large schools to be acquainted with those laws, in which case they would not have such cases as they had heard of to-night, of a child suffering from whooping-cough being allowed to continue at school, and several other instances of which he had heard.

Mr. R. Manuel said that Mr. Pope had alluded to a margin of legislation already provided by the State, but which, owing to ignorance or indifference, was not used. Now there was one direction in which great sanitary improvement might be made, and he wished to know whether existing legislation provided for it. In suburban neighbourhoods it was well known that when a district was laid out for building it was the practice, especially if the soil was valuable, for the speculative builder to cart it away, and fill in the space with all sorts of refuse. Now, in a sanitary sense, nothing could be more fatal to the health of a new neighbourhood than standing it on such a foundation, and he should like to know whether the power really existed of preventing the process.

Mr. Francis Cobb drew attention to the series of Cantor lectures now being delivered in that hall, which dealt practically with this subject, and at which the various sanitary appliances were freely exhibited.

Mr. Dipnall said the Metropolitan Board of Works had certainly the power of meeting the evil referred to by Mr. Manuel, by requiring houses to be built on a solid concrete foundation.

Mr. Blashfield believed district surveyors had power to prevent the throwing of rubbish round new houses, but the whole matter was under consideration, and he believed that, in the new Building Act, a great amendment would be made on this head.

The Chairman said they might congratulate themselves and the country on the progress which had been made in sanitary science since about the year 1854, when the Crimean campaign directed a great deal of attention to this matter. About that time, and three or four years later, they were beginning to move in sanitary science, but at the time to which Mr. Pope referred, when he said he was his pupil, his was probably the only systematic course in London on public health; and he thought he could then have reckoned on his fingers the number of men engaged in giving general lectures on the subject. At the present time there was this great Society encouraging lectures on health, and getting the best men they could find to give practical useful information. At the

Birkbeck and London Institutions also, and now and then at the Royal Institution, the subject was dealt with, and throughout the whole of the medical schools there was a desire for similar teaching. Not only so, but there were lecturers going about to different parts of the country, and in many important institutions they found a difficulty in filling the professor's chair. This was very hopeful, and he could say from a knowledge of some of the workers in similar spheres of action in France, Germany, Italy, Spain, and America, that we were both envied and admired for what we had done in this matter. Only a week ago he received from Italy the first journal of a great sanitary institution which was being established there, and in France and Germany similar institutions were being established. We might, therefore, be well satisfied with the progress which had been made, and he congratulated the meeting on the forcible way in which the subject had been brought forward by Mr. Pope. Mr. Pope had not come there to lecture on sanitary science, but to read a paper which should raise a discussion, and in this effort he had certainly been successful. It was in this way that the public mind was educated. He should rather differ with the reader on one point, viz., where he seemed to intimate that if sanitary science were taught strictly there would be many people of common-sense and good scholars, but that the number of men of genius would decrease. He did not think they need have any such fear. In a sound body there was usually a sound mind, and the more thoroughly cultivated was the physical side of man's nature, the more certainly would there be a fine intellectual development; and as men of genius were born, not made, he should imagine they would be born quite as frequently as before, and when their bodies were thoroughly well developed there was no reason to suppose that their mental faculties would suffer. That was not the case amogst the Greeks, who paid great attention to physical development; and who produced such men as Plato and Socrates. Mr. Pope had remarked on the facility with which physiology could be taught to the young, and he had been much struck by this, as a teacher himself. He had taught some 300 or 400 ladies and gentlemen, themselves engaged in teaching, for the Gilchrist Trust, and on other occasions several times, and had found the teaching of physiology the most pleasant, easy, and useful of tasks. He quite agreed with Mr. Pope that the foundation must be laid in the teaching of the basic principles of life to the young, in the same manner as the teaching reading, writing, or languages; and he agreed with him, too, as to the importance, particularly of teaching girls.

## A BURIED ROMAN CITY.

IN the paper by Dr. Hooppell, on the results of the exploration of the Roman station of Vinovium, at Binchester, in the county of Durham, made in the latter half of last year, to which we referred in our last, the writer said:—"There can be no doubt, I apprehend, that Binchester is the Vinovium of the Itinerary. Many have also thought it to be the Vinovium of Ptolemy. Of this, however, I do not myself feel absolutely certain; though when the great bed of pebbles underlying the massive masonry of Rome was discovered, I thought a striking evidence of the correctness of Ptolemy's information had been brought to light. It is undoubtedly an evidence of preoccupation of the site by our Keltic forefathers, and leads us to hope that possibly some other remains, earlier even than those of Rome, may also be brought to light. Accident led us from the north-east corner of the station to a point far to the south-west of the spot where we had been working. The station is a very large one, and its outline, as given by Mr. McLauchlan, differs widely from its outline as given on the Ordnance Map. I cannot say, therefore, whether the point to which we next went was inside or outside the Roman ramparts. I imagine, however, outside. We worked from it upwards and onwards towards the central parts of the station, and in the course of many weeks laid bare the walls of what evidently was a range of extensive buildings extending along the southern side of an important street. Further explorations afterwards led us to conclude that this street was none other than the great road, Antonine's Iter 1, which, coming from Isurium and Cattaractonium, passed through Vinovium, and went on to Vindomora, Corstopitum, and Bremenium. The northern gate is hopeless of access to us; but I believe it is Mr. Proud's intention to endeavour later on to find the place of the southern gate, if the portion of the street we have already explored is really outside the Roman rampart. I have several views of the trenches opened along the western end of this street, and the members will find them very instructive. Along the whole course of it, next to the buildings, was a continuous line of channelling. The depth of the channelling below the surface is on an average about 6 ft. The side walls of all the buildings run at right angles to this street. Some of the buildings were very large. The outside length of one, the whole circuit of the walls of which was excavated, is perhaps 70 ft., the outside breadth perhaps 25 ft., the thickness of the walls 2 ft. The remains, more or less complete, of several such buildings have been uncovered. A very singular feature in them, and one which at first puzzled us exceedingly, is the existence of two cubical stones with a square hole in the centre of each, in connexion with each building. The size of these stones, to take one at random as a specimen, is, say 14 in. × 14 × 16, with hole (3 in., × 3 × 3). There are about fifteen of them in all. The use of these mortised blocks was at first a great mystery. I have come to the conclusion for a long time past, however, that they formed portions of the doorways. Pillars, either of stone or wood, doubtless, stood upon them, and the hole was a socket into which the tenon of the post was inserted. Some of these holed stones show signs of having been raised in the course of time from their original positions to a higher level. In fact, one of the most interesting features of this street is the visible indication it affords of the long period of time, amounting plainly to centuries, possibly to many centuries, that Vinovium was a place of strength and population. The street appears to have been the road till comparatively modern days. It is piled with enormous stones, the *débris* of innumerable buildings. Among them are pillars and ornamented work of many kinds. Again and again has the channelling here and there been raised; again and again have the entrances to the building been elevated likewise. In several places huge slabs pass from the street to the adjacent buildings, forming a door-step across what may have been when it was laid down but a muddy gutter, the capacious stone channelling of the earlier and wealthier age being buried far beneath."

## INDIAN POTTERY.

AT a meeting of the Society of Arts, on the 26th ult., Dr. George Birdwood read a paper upon "The Indian Pottery at the Paris Exhibition." He remarked that former international exhibitions held in this country had caused a widespread demand for Indian carpets and jewelry, and, as much interest had been awakened in Indian pottery amongst the cognoscenti and the curiosos at Paris, he wished to raise a warning voice against the influences which were even now enfeebling and corrupting the artistic character of the wares, and which would assuredly become aggravated by the commercial demand which would spring up for it unless they were from the first intelligently resisted alike by purchasers, importers, and manufacturers. In all the varieties of Indian pottery which were suitable for exportation, an artistic effect was consciously sought to be produced, but as examples of the pottery made at Azimghur, in Scinde, and the Punjaub, and in the Bombay School of Art only were exhibited at Paris, it was only of such types that he intended to speak. The Azimghur pottery, like most of the art-work of the Benares district and eastward, was generally feeble and rickety in form and insipid and meretricious in decoration, defects to which its fine black colour gave the greater prominence. Very different, however, was the glazed pottery of Scinde and the Punjaub, which possesses charms in its simplicity of shape, the spontaneity, the directness, and the propriety of its ornamentation and the beauty of its colouring. The art was of the highest antiquity in India, and the unglazed water-vessels made in every Hindoo village were still thrown from the wheel in the same antique forms as were represented on Buddhistic sculptures and paintings. None of the fancy pottery made in India was equal in beauty of form to this primitive village pottery, and much of it was utterly insignificant and worthless. Dr. Birdwood then described in detail the mode of manufacture as carried on in Scinde and the Punjaub, and said the potter was, in virtue of his calling, an hereditary officer in every Indian village, and the patient Hindoo handicraftsman's dexterity was a second nature, developed from father to son, working for generations at the same process. There was an immense demand for water and cooking utensils, as the Hindoos had a religious prejudice against using an earthen vessel twice, and generally it was broken after the first pollution. The potter had, therefore, to supply an entire village community, and altogether he earned between 10*l.* and 12*l.* a year. He enjoyed besides that dignity certain ceremonial and honorary offices. He beat the big drum and chanted the hymns in honour of Jamee, an incarnation of the great goddess Bhowanee, at marriages; and at the "dowra," or village harvest-home festivals, he prepared the "burbu," or mutton-stew. He was, in truth, one of the most useful and respected members of the community, and in the happy theocratic organisation of Hindoo village life there was no man happier than the hereditary potter, or "koombar." With reference to the Bombay School of Art Pottery, the students had not as yet sent out anything of much merit, and one of the worst faults of their imitation pottery was in the application of Scinde and Punjaub decorative designs to vessels of Chinese and European forms.

In the discussion which followed, some of the speakers regretted the decadence of art in India, as had been shown in the designs of carpets, shawls, and jewelry; and some diversity of opinion was also expressed with regard to the quality of pottery produced by the School of Art at Bombay.

The Chairman (Sir P. Cunliffe Owen) in asking for a vote of thanks to Dr. Birdwood, said that the French people went mad over the pots at the Indian section of the Paris Exhibition, and showed so much anxiety to obtain specimens, that if the whole of the vestibule had been filled with pottery it would have been all sold. He hoped that the native workers and the schools of art in India would be encouraged by this marked success.

## BABYDOM OF MACHINERY.

A LECTURE, having the above title, was given by Professor Kennedy, of University College, at the rooms of the South London Free Library, Upper Kennington-lane, on Friday, the 7th, to an audience consisting chiefly of engineers. He described the fire-drill (by which fire can be obtained by the friction of two pieces of hard wood) as probably the oldest machine in the world, and as being still in use in some parts of the world. This was developed into a boring-drill by the addition of strings and the change of wood for metal, and next into a hand-lathe, with a bow-handle. The potter's wheel was said to be the next oldest machine. Continuous rotation was unknown until about the end of the seventeenth century, all rotation until then having been to-and-fro. The first known instance of circular rotation was a water-wheel, used in Thibet, to turn a prayer-mill, though it was also used nearly as long ago in Egypt for purposes of irrigation. The corn-mill also is very ancient. The use of the lever is also of great antiquity. The lecture was illustrated by the exhibition of some very old books on machinery. The chair was taken by Mr. Wyke Bayliss, one of the Council of the Free Library and Reading Rooms, who in a few well chosen words described the South London Free Reading Room, as also a "baby" destined to grow, but requiring at present very urgently the materials for growth in the way of funds. He alluded with satisfaction to the large number of readers, but regretted that South London, for which it is established, had not as yet supplied any funds for its support.

Professor Morley, also of University College, will lecture on "Newspapers, New and Old," on the 25th, in the same rooms.

**Salisbury Cathedral.**—A canopied tomb, designed by the late Sir Gilbert Scott, with a carved recumbent figure of the late Bishop Hamilton upon it, is to be erected opposite Bishop Poore's tomb, as a memorial to the late bishop. The figure has been carved by the Hon. and Rev. B. P. Bouverie.

## "GEOMETRY AND OPTICS OF ANCIENT ARCHITECTURE."

SIR,—The Institute of Architects has issued what purports to be a "report" of the discussion on this subject at the meeting on the 24th of February. In the long essay communicated by Mr. Cates, and which we are asked to accept as the report of his reply on behalf of Mr. Pennethorne, I find he has contradicted me upon points on which he had no reply to make at the time; having apparently, to borrow his own phrase, been "getting up his lesson" since;—not, however, very successfully.

I pointed out at the meeting that Mr. Pennethorne had manipulated Vitruvius to suit his own views by translating the word "*providere*" to "calculate," and italicising the word to draw special attention to it as supporting his view of the process of design of Greek architecture. Mr. Cates says in the report that Mr. Pennethorne's translation of the word is quite justified, but he gives no authority for it, and I am not aware on what ground he is to set me right on a question of that kind. However, to be more safe, I referred the passage to a man who is a Cantab. M.A., and took a high classical degree, who says, as I expected, that he never met with such a use of *providere* in the whole course of his Latin reading, and that, at all events, to underline or italicise the word *calculating* as a translation of *providere* would be "as forced an idea as could be imagined"; and I will challenge Mr. Cates to find a single instance of that arithmetical meaning being attached to *providere* in any Latin dictionary, however large and copious. The point is of some importance, because when we find a writer so obviously manipulating his authorities in one case we naturally feel an increased scepticism in regard to his other arguments. I also mentioned that, in the same chapter, Vitruvius observes that the corrections of proportion for effect must be the work of genius, "and cannot be taught by rule" (quoting Newton's translation for convenience). Mr. Cates has, I see, kindly set me right on that point also, in the report, and says it is to be regretted that I laid stress on a sentence which "was not even hinted at in the original." It is a pity Mr. Cates committed himself to such a statement in the Institute Transactions without knowing better what he was talking about. The words are in the last paragraph of the chapter of Vitruvius referred to. After mentioning the "*adjectiones*" and "*detractiones*," he proceeds,—"Hæc autem etiam ingeniorum acuminibus, *non solum doctrinis* efficiuntur," the force of which is correctly rendered in Newton's language.

The comparison suggested by Mr. Pennethorne between the proportional sizes in Greek architecture and the harmonising of certain notes in music I pointed out was a fallacy, as the reason of musical concords is scientifically known, and they depend on absolute and unalterable physical laws. Mr. Cates says, in his essay, my "so-called reasons are only facts." They are facts the bearing of which on the question neither he nor the President (who also referred to the point) seem to have understood. The essential distinction of a musical sound is that its vibrations are isochronous; the essential distinction of a concord is that the vibrations of the two sounds bear a certain fixed and unalterable ratio to one another, the necessity of which is demonstrable on paper without recourse to the ear at all: it is not a matter of æsthetic perception, but an absolute physical fact incapable of dispute. Now it is absurd to say, even taking the most severe view of Greek architecture, that there is any physical necessity underlying it of the same nature as that which governs the relation between the keynote and the fifth in music. Even in Doric examples alone there are traceable at least half a dozen different rules of proportion, and it is impossible to demonstrate by any physical law that one is right and the others are wrong. People are always getting into a muddle in their comparisons between music and architecture, through not drawing the line between physical and metaphysical resemblance. The real analogy between musical and architectural proportion is to be found in regard to forms of musical composition. There is here a very close analogy between "Classic" architecture and the older forms of musical composition, such as the fugue, in which the treatment of the composition is regulated by very strict rules; and then the modern forms of composition, which are much more free, have their analogy, both in regard to form and feeling, in Mediæval or "romantic" architecture. But all that is metaphysical: there is no direct physical relation between the two arts.

The manner in which a discussion at the Institute seems to be "reported" (when a member of the Council takes part in it) is really instructive. When the report of my own remarks reached me, I found it so hopelessly incorrect that the simplest thing was to write it out afresh; but in doing so I conscientiously abstained from inserting anything that I had not really said at the meeting (except a foot-note to explain the musical point, which was confessedly a subsequent addition), considering that the Transactions were intended as a *bonâ fide* report. When I turn to the report of Mr. Cates's remarks, I find a long essay containing what he never said, and what he obviously could not say, for he was so short of arguments that he had to descend to personalities. The result of this is amusing enough in some ways; for instance, it appears in the report that Mr. Cates expressed great regret that in the discussion no reference had been made to the correction of the visual angles of the Parthenon, as Mr. Pennethorne had prepared three large diagrams to show that he had been misrepresented on this point by a writer in the *Builder* (a misrepresentation for which I suspect his own confused and unmethodical way of demonstrating his case was partly to blame). It will hardly be believed that at the meeting, of which this is a "report," Mr. Cates took down off the wall with his own hand the very diagram referred to, saying he "did not know what it was for," considerably to the edification of some of those to whom its object was quite obvious and who expected it to be a main point in the reply of Mr. Pennethorne's champion. Now it would be all very well for a man who felt he had done himself injustice in a discussion, to send openly a written communication to supplement his remarks; but to send such a communication and have it printed as what was said on the occasion by "Mr. ——, Fellow," is a disingenuous proceeding, and very unfair to other speakers who do not care to adopt such tactics.

H. H. STATHAM.

## EVASION OF THE METROPOLITAN BUILDING ACT.

A PECULIAR instance of the attempted evasion of the Metropolitan Building Act came before Mr. Ellison, at the Lambeth Police-court last week. Frederick Vyne, a journeyman builder, was summoned by Mr. Parsons, the district surveyor of Lambeth, for neglecting to give him the proper notice under the Building Act as to two houses in Tintern-street.

In explaining the nature of the case to the magistrate, Mr. Parsons said that it was a common practice with builders of a certain class of houses to commence the erection of houses, and carry them up to a particular height, and then to leave them for some time in an unfinished condition. After remaining in this state for a certain period, the work upon them was resumed, but although ostensibly by the original builder, the continued building was really by the mortgagees, or some other persons unknown to the district surveyor, who, in consequence, found himself greatly impeded in enforcing the provisions of the Act of Parliament. This kind of proceeding was carried on by the agency of working men like the defendant, who, on being questioned, almost uniformly said they did not know for whom they were working, or where their employer resided.

Mr. W. H. Rawlings, assistant to Mr. Parsons, on being examined, stated that on the 25th of March last year he found two houses in Tintern-street, Brixton, being commenced by a Mr. Iles. By the end of May the roof was put on the front portion, and after that they remained for several months in an unfinished state, when at the end of the year he found the works had been resumed under the direction of the defendant, who gave him (witness) to understand that he was working for Iles, but said he did not know Iles's address. Witness again visited the works in January last, and found the defendant still working at the houses, but on being questioned as to whether he was still working for Iles, he prevaricated, and on being threatened with a summons, he admitted that he was working as foreman for the mortgagee, Mr. Bartlett, of Gresham-street, City,—that he engaged and paid the men, and that Mr. Bartlett sent him the money. Witness then desired defendant to inform Mr. Bartlett that a notice to the district surveyor of change of builder or resumption of the work was required under the Act of Parliament. No such notice had been sent in to the district surveyor, and hence the present summons.

The defendant, in reply to the charge, said that as he was only working for Mr. Bartlett he did not consider that he was the builder; but Mr. Ellison, the magistrate, observed that "builder" should mean not only the master builder, but any person engaged in doing any work upon a building, and that he, according to his own admission, was clearly so engaged. The Act provided that a notice should be given to the surveyor after work had been suspended, or if the builder was changed, and it was important that the Act should be complied with. He should inflict a penalty of 3*l.*, and 12*s.* 6*d.* costs, and he advised the defendant to apply to Mr. Bartlett to pay it.

## THE PURIFICATION OF THE CLYDE.

BY direction of the Home Secretary, Mr. Clark, the Sheriff-Principal of Lanarkshire, held a public inquiry at Glasgow, on the 27th ult., as to the application of the local and sanitary authorities of Glasgow and the neighbouring burghs for the suspension of the "Rivers Pollution Prevention Act, 1876," so far as the Clyde and its tributaries are concerned. The different applicants were represented at the bar, and appearances were put in for Lord Blantyre and other proprietors along the banks of the river as objectors to the application.

In opening the proceedings, Mr. Lang, for the Glasgow authorities, remarked that the suspension of the Act was necessary to admit of the completion of some chemical experiments with sewage. The authorities had under consideration a scheme by Mr. Bateman, C.E., in which it was stated by that gentleman that he did not know how long sewage water, after being filtered and precipitated, would remain pure in the river. It had been remitted to Dr. Wallace, the city analyst, to ascertain the fact, and his report was not yet ready. The authorities, he added, were anxious to secure the purification of the river if they could obtain a scheme which could be adopted consistently with public health. It was stated that the whole of the other applicants concurred, while Mr. Wilson, for the Govan authorities, urged that as the Clyde was a tidal river, it was questionable whether the designation stream in the Act could be applied to it.

On behalf of the objectors, Mr. France remarked that if the applicants did not know how to deal with the sewage question, they knew how to evade it, as they had for the last twenty years, although pretending to be busy, done absolutely nothing. The objectors had a large quantity of land, which was at present worthless, not only for building, but for agricultural purposes, on account of the state of the river. It seemed to him that as the authorities had not done anything, were not prepared to do anything now, and would not pledge themselves to do anything in the future, the application should not be granted.

The Sheriff-Principal asked Mr. France whether he had any remedy to suggest, and he replied in the negative, adding that he did not think any suggestions of his would be adopted when the plans of a large number of eminent engineers had been rejected. It seemed to his Lordship that while there was much force in this observation, the applicants had done their best to solve what was a confessedly difficult problem. The report he had to make on the subject would, he indicated, be forwarded to the Home Secretary.

It was arranged that the Glasgow authorities should pay the expenses of the inquiry.

**Buddhist Caves.**—The *Times* correspondent from Jellallabad says the archæological investigations of one or two officers in the camp have revealed both sculpture and fresco painting in a few of the caverns which abound at Hadah. But funds are sadly needed to start working parties. It is to be regretted that the General has no taste for antiquities, else many of the fatigue parties who are now doing aimless work up and down the camp merely to pass the time might be employed with splendid results in unearthing the archæological treasures of this teeming district.

## THE CAVE OF THE ORACLE AT DELPHI.

THIS was the title of a paper read by Dr. Phené, F.S.A., before the British Archæological Association, on March 5th. It first described the topography of Delphi, and stated that there was no appearance, either geologically or physically, of any cleft or fissure, or any protected orifice, except that near the Castalian fountain, neither could he (the reader) trace on the spot any traditions of another. From this he assumed that the emanations which produced the furor of the Pythia were given off at or near the fountain. This place was shown, by diagrams, to be still of confined area, and previously to the damage it was known to have sustained by even recent earthquakes, must have been closely protected all round by lofty natural walls of rock, and so would retain, as a receiver, any gases given off. The stream was shown, by a quotation from Pausanias, to disappear at a long distance, and to reappear, under its name Castalia, at this spot, showing a passage through caverns no doubt charged with the gas. The earlier temples mentioned by Pausanias and others must have been of very small dimensions, and were, therefore, no doubt, placed in this cleft. When a new temple was to be built, and decorated with the marble of Paros by the Alcmœonidæ, a new and imposing site would be selected, which Herodotus distinctly indicates was the case, but the place of inspiration would remain the same. The cave and the site of the new temple (that now recognised) were not far apart. This was shown by drawings made on the spot, and Dr. Phené attributed to this change of site of the temple the excavation of the large chamber, 36 ft. by 24 ft., and about 25 ft. from floor to under side of roof, cut into the cliff somewhat south-east from, but in close proximity to, the fountain. There is a subterranean cutting beneath this chamber which would have allowed persons to be introduced or removed from it unnoticed, and even if the natural gas failed, a substitute could have been made to influence the priestess unknown to her, the rushing water preventing movements from being heard. The cave agrees as to position near the temple with the cave of Apollo's Sibyl at Cumæ, near Naples, and Apollo's temple there, as described by Virgil. In each case there was the same influencing vapour. Comparisons were made between Delphi and the other principal sites of the worship of Apollo, viz., Delos, Amyclæ, Tenedos, &c. At each place remarkable symbols were illustrated by drawings; the site of his great temple at Amyclæ was said by the lecturer to have been erected on a vast earthwork representing three serpents with their heads united by a disc or circular platform of earth, which overlooks the river Eurotas from Sparta to the sea.

## COST OF HIGHWAY MAINTENANCE.

MR. WILLIAM BIDDELL, land agent, and head of the firm of Biddell & Blencowe, in a letter to the *Ipswich Journal* on the difference between the cost of maintaining highways under the old parish system and under Highway Boards, writes:—

Like three-fourths of the waywardens, I was under the impression the Board system had considerably increased the cost of maintaining the roads. I resolved to investigate the case of my own parish [Lavenham], and now give you the results. For the seven years ending with 1858, I found the cost of maintaining our roads averaged 141*l.* a year. [I had not the information by me to take a longer period.] For the sixteen years of the Board system the annual amount paid in averaged 209*l.*; included in which is about 465*l.* expended in permanent improvements,—equal to 33*l.* a year. Deducting this, we have our expense for 11 miles 3 furlongs of road reduced to 176*l.* Analysing the old expenditure of 141*l.*, I find it was made up of the following items:—First, labour: the increased cost of this is not over-estimated when taken as from 9*s.* to 12*s.* a week, or one-third. Materials come second: they have advanced considerably. Royalty, from 1*s.* to 1*s.* 6*d.* a load; but as probably this is exceptional, I will, instead of 50, take it at 40 per cent. Thirdly, team labour: a man with two horses and cart have risen from 7*s.* to 9*s.* a day, say one-fourth. Fourth, tradesmen's work is certainly 25 per cent. more costly. The fifth item, incidentals, may be taken to have advanced in like manner. The sixth item may remain the same. The comparative cost between old and present time will, then be as under:—

| | | | |
|---|---|---|---|
| 1. Labour | £27 | advanced to | £36 |
| 2. Materials | 53 | ,, | 74 |
| 3. Team labour | 26½ | ,, | 33 |
| 4. Tradesmen | 20½ | ,, | 25 |
| 5. Incidentals | 4 | ,, | 5 |
| 6. Salary | 10 | ,, | 10 |
| Totals | 141 | and | 183 |

With this rise of 30 per cent. (with which the Board has had little or nothing to do), we might fairly have calculated our roads to have nearly cost 183*l.*, whereas they cost but 176*l.* a year. This is but a trifling gain, but in addition we have undoubtedly the comfort of better roads. I might also have made allowance for the increased wear and tear of our roads by the formation and working of the railway and station, and by the establishment of the sugar works; also for the cost we contribute towards the Melford turnpike, where a gain of 15*l.* to 20*l.* a year could, I think, easily have been shown.

In small parishes where the surveyor is largely interested, and well manages the roads, the new system, no doubt, presses heavily. The old is no doubt preferable where the "right man is in the right place"; for a good, working, intelligent man will, of course, succeed better than a paid surveyor who can give but little time to one parish. But intelligent farmers are grown commercial, and are less disposed in great parishes to work for the public weal than formerly. They know full well that, like the shopkeepers and others, they cannot leave their business without loss. The result is, in such parishes office is frequently given to men ambitious of parish honours, whose gratuitous services turn out to be very dear.

## LONDON LABOURERS' DWELLINGS SOCIETY, LIMITED.

AT the annual general meeting of this society, held on the 6th inst., the report brought up by the directors was adopted, a dividend at the rate of 5 per cent. per annum was declared, and ordered to be paid for the half-year ended Dec. 31, 1878, and the three retiring directors were unanimously re-elected.

According to the report, the directors have erected a block of buildings (Murray Buildings) on the society's vacant ground at Vauxhall. These buildings were commenced in the month of April, and were ready for occupation early in December. Each tenement is self-contained, having a scullery with a copper, its own water supply, and other conveniences. There are twelve tenements of two rooms (including the scullery), thirty-two of three rooms, and eight of four rooms, making in all fifty-two tenements, the whole of which are now occupied. In the month of May a piece of freehold land, at "The Ferry," Upper Clapton, was purchased, on which twenty cottages are being built, and the greater number of them are now approaching completion. The directors further purchased, in the month of August, forty freehold houses in New Gravel-lane, near the London Docks. These operations have called for an outlay of upwards of 20,000*l.* The society's tenements have been well let, it is stated, and the rents satisfactorily paid.

## THE METROPOLITAN BOARD OF WORKS AND THE WATER BILLS.

### ALLEGED ILLEGAL EXPENDITURE.

THE legality of the promotion of the water bills of last session by the Metropolitan Board of Works is questioned, and an attempt is to be made to have the cost struck out by the auditor. At a meeting of the St. Olave's District Board of Works, which has just been held, the Parliamentary Committee reported that they had taken counsel's opinion with respect to the recent action of the Metropolitan Board of Works on the water supply question, and they were advised that the Metropolitan Board were not acting within their statutory powers in promoting the Water Supply and Waterworks Purchase Bills introduced into Parliament last session, and consequently that the Board were not justified in paying the expenses incident to the promotion of such Bills out of the rates. Counsel had advised that the remedy was for the ratepayers in their individual capacity to attend before the auditor, and make their complaint to him, this Board having no power to take legal proceedings on the subject. The report was received, Mr. Besley, one of the members, stating that the Metropolitan Board of Works had squandered a sum of over 16,000*l.* in promoting the water Bills, without having any authority to undertake the work, and that he intended, with others, to go before the auditor and object to the payment.

## THE BATTERSEA NEW VESTRY-HALL.

THE site to be purchased for the proposed new vestry-hall for Battersea has been decided upon. At the last meeting of the vestry, the special committee appointed to find a site presented a report on the subject, in which it was stated that the committee had found two available sites, both of about half an acre in extent. The first was on Lavender-hill. It was the property of Mr. Hiscox, a churchwarden and vestryman, but had been independently valued at 3,500*l.* It had 191 ft. frontage, and a depth of 115 ft. It was geographically the centre of the parish, and easily accessible. The other site was at the north end of Falcon-lane, and was the property of Mr. Fownes. Its value was 3,000*l.*, and it had a treble frontage to Falcon-lane, Battersea Park-road, and Fownes-road. It would not, however, be possible to have basements to the new buildings proposed to be erected, owing to the sewer floodings, which were continually occurring at this point, and it was generally found near that spot that water and running sand were discovered, creating great difficulties in the way of obtaining a proper foundation. The committee, therefore, recommended the purchase of the first-named site, not only on account of greater centrality and convenience, but owing to the probability of their deriving a large rental from letting the hall, a large public hall being much required in that neighbourhood. The committee further recommended that a vestry-hall, to hold 1,000 persons, and vestry and other public offices, be erected on the site, at an estimatad cost of 18,000*l.*, the total outlay being set down at from 22,000*l.* to 23,000*l.*

## THE GOLDEN-LANE AND PETTICOAT-SQUARE IMPROVEMENTS.

UNDER the Artisans' and Labourers' Dwellings Improvement Act, the materials of upwards of one hundred houses were sold in the City last week by Messrs. Horne, Eversfield, & Co., preparatory to their demolition in order to carry out the improvement schemes in Golden-lane and Petticoat-square. On Tuesday, the materials of fifty houses in Golden-lane, Barbican, and Crown-court adjoining, under the Golden-lane Improvement project, were sold. By this scheme Golden-lane, in the re-building, will be doubled in width on the west side, from its northern extremity, at the junction with Old-street, to Barbican, and made uniform in width with Red Cross-street opposite, on the south side of Barbican. Fann-street, on the west side of Golden-lane, which is included in the improvement, has already been almost entirely re-built, the new building consisting for the most part of large warehouses and other business premises. On Friday there was another sale of the materials of upwards of sixty houses in Petticoat-square and Harrow-alley, Houndsditch, under the Petticoat-square, Stoney-lane, and Meeting-house-yard Improvement Scheme. This improvement will have the effect of sweeping away several of the notorious haunts and dens in the neighbourhood of Petticoat-lane.

As regards the Golden-lane Improvement, the St. Luke's Vestry and the Metropolitan Board of Works are at issue with respect to the cost. At the last meeting of the first-named body a resolution was moved by Mr. Churchwarden Pedder to the effect that a deputation from the Vestry wait upon the Metropolitan Board to urge upon them the desirability of their advancing or allowing the Vestry to borrow the sum required to complete the improvement. The time had now come, he observed, when some steps should be taken to obtain this money, if possible, from the Metropolitan Board. For the Vestry to attempt to force the sale of the land at the present time would certainly result in a great loss to the parish, and to raise the total amount required by means of rates would be a course equally objectionable. Considering that the Metropolitan Board agreed to the improvement, and were really parties to the contract, he trusted they would now see

the propriety of complying with the application of the Vestry. The resolution was adopted unanimously; but subsequently, before the Vestry separated, a letter was received from the Metropolitan Board stating that they had again fully considered the whole of the circumstances connected with the improvement, and were unable to see any reason for departing from the terms of the resolutions previously arrived at on the subject, and communicated to the Vestry.

## MEDALS AND PREMIUMS OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT a special general meeting of members only, held on the 10th of March, Mr. Charles Barry, president, stated that his Royal Highness the Prince of Wales had signified his intention to dine this year with the Institute, and had suggested Saturday, the 26th of April, as the evening on which the dinner should take place, which date had consequently been adopted.

*The Royal Gold Medal.*

The President announced the intention of the Council to recommend to the general body of members the name of the Count Melchior de Vogüé.

Professor Donaldson said,—Having been for a long time personally acquainted with Monsieur de Vogüé, I rise, sir, to second the proposition which has just been made from the chair. Some years ago, when I was in Paris and paying a visit to the Director of Antiquities at the Louvre, there was with him a gentleman to whom he introduced me. This, my friend said, was a nobleman who had travelled a great deal in the Holy Land, and had made discoveries of many churches, of the fourth, fifth, and sixth centuries, in Aleppo and the Hourân. We had some conversation together, after which he invited me to his house, where he showed me the drawings he had executed. Those drawings were very beautiful, and formed the originals of engravings which were then being prepared for a now celebrated work, and they were executed with great artistic skill and taste. I immediately had this Institute in my mind, and asked him if he would object to my laying some account of his travels and the edifices he had discovered before my brother architects, when he most kindly said I might make what use I liked of the materials at his command for that purpose. On my return to England I drew up a paper, which I read here, giving an account of those remarkable buildings. They were very remarkable because they were of the earliest ages of the Christian era. They were remarkable buildings erected in a stone country where there is hardly any wood. The staircases were of stone, the walls were of stone, the floors were of stone, and carried in a most remarkable way by arches very near apart and covered with slabs from arch to arch. The doors of the chambers were also of stone, and the architecture throughout was of a very remarkable kind indeed; there is a great deal of boldness and character in the several buildings which are illustrated in the books now lying on the table. It was a very agreeable thing that about that time Monsieur de Vogüé was elected one of our honorary and corresponding members. An old and honoured friend (Mr. Fergusson), who is sitting near me, has, like Monsieur de Vogüé, published a very valuable work on the buildings of Jerusalem, in which he has expressed some views at variance with those of the French author. Men of intellect and imagination will hold different ideas upon ancient monuments, and if they do there is nothing to say about it. Monsieur de Vogüé, not an architect, but a learned amateur, has told us his opinion with regard to the site of the Holy Temple at Jerusalem, and we are obliged to him for having given us the benefit of his ideas and the result of his remarkable inquiries. I support with great pleasure the recommendation of the council that the recipient of the Royal Gold Medal for the current year shall be Monsieur le Comte Melchior de Vogüé.

Mr. James Fergusson, F.R.S.:—After what Professor Donaldson has stated I can add nothing, except that I am delighted to find the recommendation of the Council so well received by the members present. I think no man in the world has devoted himself more signally to the advancement of archæological pursuits than has the Count Melchior de Vogüé. True, he and I may differ on some points with regard to the Holy Temple, and I cannot suppose that the whole world will go with me; but the contentions, such as they are, have been carried on in so straightforward and gentlemanly a manner that nobody can make any objection to them. The books of Monsieur de Vogüé now lying on the table are perfect; and I think they add more to the knowledge of the architecture and archæology of Syria than any works that have ever been published. They have been brought out with a degree of ability, earnestness, and knowledge which places them far beyond any books I know. I am sure that a more worthy recipient of the Royal Gold Medal could not be found.

It was then, in accordance with precedent, resolved to humbly submit for Her Majesty's gracious sanction that the Royal Gold Medal for the year 1879 be presented to Monsieur le Comte Melchior de Vogüé, hon. and corr. member, late Ambassador of France at Vienna.

*The Pugin Travelling Studentship*, 1879.—It was resolved that W. J. N. Millard be elected the Pugin Travelling Student for the year 1879, and, further, that Frederick Hemmings be commended for the care shown in the drawings and sketches submitted by him. There were eight candidates.

*Soane Medallion.*—Four sets of drawings were submitted. The Soane Medallion, with the sum of 50*l.* added under the usual conditions referring to Continental study, was awarded to the author of the drawings distinguished by the motto, "I strive," found to be by William R. Lethaby (aged 22), Ebberley-lawn, Barnstaple.

*Sir William Tite's Prize of* 30*l.*—Six sets of drawings submitted. The prize was awarded to the author of the drawings under the motto, "Green Margins," found to be by C. E. Sayer, 17, Soho-square, W. A Medal of Merit was awarded to the author of the drawings distinguished by the motto, "Patientia et Spes,"—Herbert Alexander Pelly, Morden, near Mitcham, Surrey. Certificate of Honourable Mention was awarded to the author of the drawings distinguished by the motto "Acanthus," Frederic Edwards, Queen's-chambers, John Dalton-street, Manchester.

*The Grissell Gold Medal.* — Four sets of drawings.—The medal was awarded to the author of the drawings submitted under the motto "Dulce Domum," Mr. G. H. Blagrove, 84, Southampton-row.

*The Institute Silver Medal* (with Five Guineas). Five sets of drawings submitted. This medal, with the sum of five guineas, was awarded to the author of the drawings distinguished by the motto "Labor," Frederick Pinches, 359, Strand. A certificate of Honourable Mention was awarded to the author of the drawings distinguished by the motto "Architecture," Sydney Vacher, 7, Stanley-crescent, Kensington Park.

*The Institute Silver Medal.*—The President announced that not a single essay had been sent in, and that last year the same thing had occurred. It was much to be regretted.

Professor Kerr suggested whether something could not be done to stimulate the production of essays, in which they had been lamentably deficient. He only recollected one really good essay that had been sent in, but that did not get a prize, though he and Professor Lewis voted in favour of it. He thought a fair amount of money prize would stimulate work in that direction.

Professor Donaldson remarked that the essay of greatest merit was that which was first sent in,—that on "Concrete."

## ARCHITECTS' BENEVOLENT SOCIETY.

A SPECIAL general meeting of this Society was held on Wednesday afternoon in the meeting-room of the Royal Institute of British Architects, Conduit-street, Mr. David Mocatta in the chair, when it was resolved, after some discussion, that Bye-laws 58 and 59 shall hereafter stand as follow:—

58. All legacies and all donations, unless otherwise directed by the donors, shall be invested in Government securities or in first-class railway debentures, under the direction of the council.

59. All the annual subscriptions and dividends of stock shall be applied to the payment of the necessary expenses and the relief of applicants.

The annual general meeting was then held. The report, read by the Chairman, was as follows:—

"The Report which your Council had to lay before the subscribers to the Architects' Benevolent Society in 1877 was of a very depressing nature, and a fresh appeal was subsequently made to the profession, with such success that in their Report for 1878 they were enabled to announce to the general body a gain to the Society upon the year of 489*l.* 12s. Gratifying as was this result, the Council cannot feel that the claims of such a charity as this, appealing as they do to the warmest feelings of our nature, are as fully and continuously responded to as the increasing numbers and influence of our profession might fairly have anticipated.

There is, however, one bright spot. The Council can refer with pleasure and with gratitude to the memory of the generous donors of the two legacies which were left to this Society during the last year by two former subscribers, viz.:—one of 100*l.* by Mr. Charles C. Nelson, and one of 1,000*l.* by Mr. John Johnson,—an example which the Council trust may not be lost sight of, or be without imitators. Since the formation of the Society in 1850 there have been only two legacies bequeathed, amounting in all to only 220*l.* In one year to have succeeded to five times this amount is a very gratifying announcement.

These sums (as well as all subsequent donations) will by a recent resolution of the Council, if confirmed by this meeting, be invested, and with the stock already standing in the names of the trustees, will give a total of 3,551*l.* 1s. 2d. invested, the interest of which will be applied to the wants of annuitants and applicants.

The Council have to announce that in 1878 there has been a gain of seventeen new subscribers of one guinea each, and of four new subscribers of two guineas each, with a gain of 61*l.* 19s. from new donors. The subscriptions received amounted to 314*l.* 4s. 3d., and donations to 108*l.* 4s. 6d.

The gifts to twenty-five applicants amounted to 320*l.*, and the working expenses to 74*l.* 3s. 4d., leaving a balance in the hands of the treasurer of 27*l.* 11s. 3d. Of the former subscribers, five have died, and two have discontinued their subscriptions.

The Council have this year again to announce the loss of another honoured officer of this Society, one of its trustees, Sir Gilbert Scott, R.A., to whose family a letter of condolence has been addressed. To fill up the vacancy thus caused by death, the Council have unanimously determined to recommend for the election of this meeting Mr. Charles Barry, President of the Royal Institute of British Architects, who has kindly consented to act if elected.

The Council cannot close this report without again thanking the Royal Institute of British Architects for continuing to this Society the useful aid of accommodation for all its meetings, rent free, and they gladly offer to the members of the Institute their warm congratulations on its present energy, prosperity, and influence, the effects of which they dare believe cannot but be reflected in some degree on the objects and usefulness of the kindred Benevolent Society."

The balance-sheet, read by Mr. J. Goldicutt Turner, hon. sec., showed that the total income on the general account for the year was 591*l.* 3s. 7d., including 10*l.* 3s. 10d. balance brought from the Pension Account, 314*l.* 4s. 3d. for subscriptions, 108*l.* 4s. 6d. donations, 100*l.* legacy by the late Mr. C. C. Nelson, and 58*l.* 1s. balance in hand brought forward from the previous year's balance-sheet. The total expenditure on the general account was 563*l.* 12s. 4d., including 74*l.* 3s. 4d. for working expenses, 169*l.* 9s. invested in Stock (New Three per Cents.), and 320*l.* cash gifts to applicants, leaving a balance of 27*l.* 11s. 3d. to be carried forward to next year's account. The Pension Account showed that 70*l.* 13s. 10d. dividends on stock had been received, and that 60*l.* had been paid to annuitants, the balance, 10*l.* 3s. 10d., being carried to the general account. The amount of stock (New Three per Cents) belonging to the Society is now 2,551*l.* 1s. 2d.

The report and balance-sheet were unanimously adopted, and ordered to be printed.

It was unanimously resolved, on the motion of the Chairman, that Mr. Charles Barry be elected a trustee of the Society, in the room of the late Sir George Gilbert Scott.

It was also resolved that Messrs. Ewan Christian, T. Hayter Lewis, A. W. Blomfield, J. P. St. Aubyn, and W. A. Boulnois, be elected members of Council, in the room of Messrs. R. R. Arntz, H. H. Collins, James Edmeston, E. A. Grüning, and Edwin Nash, who retired by effluxion of time.

Messrs. James Edmeston and D. C. Nichols were elected auditors for the present year.

The other officers of the Society were re-elected, and votes of thanks accorded to them; to the auditors for the past year (Messrs. George Williams and J. Douglass Mathews), and to the Institute of Architects for the use of the meeting-room.

Bye-laws 58 and 59, as amended by resolution of the special general meeting, were adopted, and a vote of thanks was accorded to Mr. Mocatta for his services in the chair (in the absence of the president, Mr. Thomas Henry Wyatt, who was in Ireland).

Mr. Mocatta, in acknowledging the compliment, said that the architectural profession held a very high position in this country; but he was afraid that some of its members attained to and maintained their high position without much thought for those who had not been

equally successful in their career. He had never been thoroughly satisfied with the financial position of the Architects' Benevolent Society, and he thought that if its friends would make "a strong pull and a pull all together," they might, in a very short time, increase the invested fund to the sum of 5,000*l*. Only 1,530*l*. were required to do that. Such an increase of invested funds would be a great thing for the Society, which was not always able to deal with all the deserving cases coming before it, and in those cases where help was given, the amount of relief which the Society was able to afford was frequently not at all adequate to the needs and deserts of the applicants.

Donations to the amount of 46*l*., and subscriptions amounting to 13*l*. 13s. were announced as having been received since the date of the report and balance-sheet.

## ARCHITECTS' LIABILITIES TO BUILDERS

STEVENSON *v.* WATSON.

THIS case came before the Common Pleas Division of the High Court of Justice on the 7th inst. (Sittings *in Banco*, before Lord Chief Justice Coleridge and Mr. Justice Denman) upon demurrer to a statement of claim, and it raised a question of considerable importance as to the liability of architects in relation to their duties under building contracts between master and servant.

The plaintiff (we quote the *Times* report) was a builder employed under a contract to erect a large building as a temperance-hall near Nottingham, and the defendant was an architect employed by the building-owners to superintend the execution of the works. The defendant had previously prepared plans and bills of quantities of artificers' work, and these plans and bills formed the bases of the contract which was executed between the plaintiff and the building-owners. The bill of quantities contained also two further stipulations,—first, that should there be more or less measure than was there given, there would respectively be an addition to or deduction from the contract; and, secondly, all measurements were to be made in the same manner as the quantities had been taken, and all additions or deductions were to be priced at the same rate by the architect. The contract then set out the following conditions, which appeared in the statement of claim:—The architect might order any additions to or deductions from the contract without in any way vitiating the contract, and the amount of such additions or deductions was to be ascertained by him in the same manner as the quantities had been measured, and at the same rate as they had been priced at. Another clause provided that all disputes between the plaintiff as contractor and the building-owners, which might arise during the progress of the works, were to be settled by the defendant, whose decision was to be final and binding on all parties; and lastly, it was provided that the plaintiff was to be paid on certificates, signed by the architect, of the work done and money which was due. The claim then stated that from time to time the architect did certify accordingly until the works were completed. A final statement of accounts was then sent in by the plaintiff to the defendant, showing that, after adding to the contract the amount of the additions ordered by the defendant and deducting the amount of the deductions ordered by the defendant, and making all necessary corrections to errors discovered in the bill of quantities, a net balance was owing to the plaintiff of 1,616*l*. 6s. 7d.; but the defendant, without calling upon the plaintiff for an explanation, certified only for an excess over the estimate of 251*l*., and thus did not use that due care and skill in ascertaining what was really due to the plaintiff, on the faith and expectation of which he had been induced to sign the contract, but knowingly and negligently certified for an inferior sum. The claim concluded that upon complaint made by the plaintiff the defendant refused to give any reasons or to reconsider the matter.

To this statement of claim the defendant demurred, on the ground that the statement showed the defendant to be in the position of an arbitrator who had acted and declared his decision, and that, as no fraud or *mala fides* was suggested, no action was maintainable.

Mr. Alfred Wills, Q.C. (with Mr. Graham), argued for the demurrer; Mr. Cave, Q.C., and Mr. Wood Hill appeared for the plaintiff.

At the conclusion of the arguments, which occupied several hours, the Court gave judgment as follows:—

Lord Coleridge said the case was one of considerable importance, and but for the intimation that had been given that, which ever way the Court decided, the matter would be afterwards reviewed by the Court of Appeal, he should have taken time before giving his judgment. In his opinion this action would have been maintainable if it could have been fairly contended that the relation of the parties was this, and this only,—that the plaintiff had undertaken to do certain work under a contract with a third person; that the contract was one to which the defendant was in terms no party, but that he was aware of it, and had acted under the duty which it imposed on him of doing certain work requiring no judgment or opinion, but only what he might call the exercise of ordinary arithmetical powers, and that his performance of that duty under the contract was necessary to enable the plaintiff to recover his money, and that he had neglected that duty. If this was the true construction of the present contract, he was of opinion that an action would lie; for none of the cases cited in the argument were cases in which the imposed duty was such as he had described, and the breach of duty of the sort that he had indicated. The present claim, however, was not such an action, but was really an action for that which had been attempted over and over again without success,—viz., to bring an action for the negligent performance of duty to the exercise of which the exercise of judgment and opinion was necessary. This being the true view of the claim, the cases on the point which had been cited were binding, cases which the Court was bound to follow, and which, speaking for himself, he entirely concurred with. It had been argued for the plaintiff that the statement of claim set out a cause of action founded on this,—that the only duty which the defendant had to fulfil was a ministerial, clerkly duty in making certain arithmetical calculations which called for the exercise of no judgment or opinion, and that as damage had accrued in consequence the defendant was responsible at law. In his opinion this was not a fair view to take of the contract, nor did he think that the word "knowingly," which had been relied upon, meant necessarily that the defendant had acted "fraudulently," the word being one which was capable of a more innocent meaning. If the contract and the duty to be performed were looked at carefully, he was of opinion that the duty was something beyond what was merely ministerial, and was a duty requiring considerable knowledge and calling for the exercise of sound professional skill and judgment. If he was right in this view, the cases of "Pappa *v.* Rose" and "The Tharsis Sulphur Company *v.* Loftus," which had been cited by Mr. Wills, were strictly in point; but they were not this case; for in this case there had been no fraud or *malæ fides*, unless covered by the word "knowingly," which, in his judgment, as already expressed, did not necessarily imply fraud. The case was within the authority of those cases which decided that where the exercise of judgment or opinion on the part of a third person was necessary between two persons, and in the opinion of one of the two such opinion or judgment had been wrongfully or negligently exercised, no action could be maintained against a person standing in the position of third party. There remained only that part of the statement of claim which alleged that when the plaintiff received the certificate for the lesser sum he asked the defendant to reconsider his decision, or to give the grounds of it, and that the defendant refused. In his judgment no action would lie for such a refusal on the part of the defendant. The contract only required that disputes between the contracting parties should be settled by the defendant, and he was in no way bound to enter into any reasons for any decision he arrived at, having regard to the relations that existed between him and the plaintiff.

Mr. Justice Denman concurred. There was no direct contract between the plaintiff and the defendant, but it was contended that the defendant was liable, either as a person who had entered into an implied contract with the building-owners and the plaintiff, or that by virtue of his office he owed a duty to the parties which he had neglected toward the plaintiff. The duty of the defendant, in his judgment, was to perform what he had to do honestly, and there was no suggestion in the statement of claim of any *mala fides* or dishonesty. The nature of his duties was strictly analogous to those of an arbitrator, and not, as had been suggested by Mr. Cave, to those of a mere appraiser. Ordinary acquaintance with building contracts showed that an architect could not be regarded as a mere caster-up of figures, and ought not, therefore, to be held liable for negligence when a mistake in figures or measurements occurred. He concurred with Lord Coleridge that "knowingly" ought not to be stretched into meaning "fraudulently," and agreed that the defendant was not called upon to give any reasons for his decisions to the plaintiff, or to re-open the matter at his request. The demurrer, therefore, would be allowed.

## SANITARY CONDITION OF PLYMOUTH.

AN elaborate report by Dr. Baxall to the Local Government Board has been published, and demands the immediate attention of the authorities. It is evidently the result of careful examination, and shows the existence of a frightful state of things in parts of the district. Having personally examined a considerable part of the town we are able to confirm many of Dr. Baxall's statements.

Take two or three of the special cases of filthiness pointed out.

*Jays-court* is thus described:—"Closed at one end; contains eight or ten houses, some of which face King-street, which is some feet higher than the court, being on a level with the rooms on the first floor. The refuse of some twenty families is stored under one of these houses, and is said to be cleared away once a fortnight, but only very partially, much of it being left behind, as I observed to be the case on the morning of my visit, soon after the scavenger had left, when 8 in. or 10 in. deep of decomposing filth remained draining into the court, there mingling with slop water and stagnating in puddles in the broken pavement. Three very filthy closets stood in the court, one discharging direct either into a cesspit or a sewer, which of the two I was unable to ascertain owing to the revolting state of the closet precluding further investigation."

Again:—

"11, *Notte-street*. — Occupied by several families. House damp, and generally pervaded by sewer air. The closet, situated on the stairs, is unprovided with means for flushing. A small window in it opens into a warehouse, but at the time of my visit it was closed up, the persons hiring the warehouse stating that the stink was so bad that they could not endure it. In the passage on the ground-floor is a sink, the pipe from which, together with the soil-pipe from the closet, leads to an old drain in the cellar, which was broken in for many feet, the sewage escaping and flooding the cellar to such an extent that it could be entered only at one spot. I received a long and sad history of sickness from the family occupying the rooms immediately over the cellar."

"*Granby-green, Granby-place, Granby-square, Granby Cottages, and Stafford-row.*—Are all confined courts situated in Granby-street, and or the most part offer examples of aggravated unwholesomeness. Each court is about 16 ft. wide, closed at one end, and opening into a narrow street at the other end; while on either side are situated about five houses standing back to back with other houses in the adjoining courts. Granby-green and Granby-place may be specially mentioned. The former has a rough stone pavement full of holes; and an open drain, half filled with stagnant filth, in untrapped communication with the sewer; while built up in one part of the court is a large receptacle which at the time of my visit contained accumulations of fish and vegetable refuse. The so-called closets in the court consist of pans set in brickwork, so revoltingly foul as to preclude their being used except for emptying vessels into them."

As to the distribution of mortality within the town, the reporter made a careful analysis of the death registers for the last five years and a half, with the result of finding a decided incidence of mortality upon certain streets that are, as matter of fact, characterised by prevalence of unwholesome conditions in an exaggerated degree. This is quite in keeping with the experience of the parochial medical officers and other medical gentlemen practising largely amongst the poor, who were unanimous in stating that they got a preponderance of sickness in these streets and in the immediate neighbourhoods. In order to enable comparison to be made between the health of these streets and the rest of Plymouth, Dr. Baxall selected a few of them, and instructed persons in whom he could place confidence to obtain their respective populations.

The general mortality of the given streets amounted to 764 deaths, showing a yearly rate of 30 per 1,000 of the population. Of these 764 deaths, 164, or nearly 22 per cent., are referred to the seven principal zymotic diseases; 105, or nearly 14 per cent., to phthisis; 134, or more than 17 per cent., to pneumonia and bronchitis. Thus, about 53 per cent., or more than one-half of the total mortality, is referred to diseases which are more or less preventible.

Again, comparing the annual death-rates obtained in these streets with corresponding rates for the remainder of Plymouth, we find the general death-rate of the streets is 30 per 1,000, against 21 per 1,000 for the rest of Plymouth; also that the total death-rate from the seven principal zymotic diseases is double that from the same causes in Plymouth, being 6·4 against 3·2 per 1,000; while the death-rates from phthisis, and pneumonia and bronchitis, are also considerably in excess, being 4·1 and 5·2 respectively, against 2·2 and 3·07 for the rest of Plymouth. Lastly, the infantile death-rate is 199·9 per 1,000 of the births, against 161·1 per 1,000 for the remainder of Plymouth. The significance of these figures will be better appreciated from consideration of the fact that, had the rates of mortality obtained in the given street from all the specified diseases been equalled by the remainder of Plymouth, the corresponding deaths in the latter would have amounted to 5,806 instead of 3,137; in other words, there would have been an increase of 2,669 deaths. With reference to the given streets, it is pointed out that while the high mortality from all causes is undoubtedly attri-

butable to the general unwholesome conditions that prevail, the excessive fatality from "fever" and, perhaps, from diarrhœa, may be regarded as the results specially of excremental nuisances; and, in like manner, the very high death-rates from diseases of the respiratory organs may be connected more particularly with dampness, overcrowding, and other unwholesome conditions tending to vitiate the atmosphere of the dwellings.

The report closes with a number of Recommendations, all of them of obvious necessity.

## THE HOUSES OF PARLIAMENT. PROPOSED ALTERATIONS IN THE REPORTERS' GALLERY.

IT has transpired within the last few days that there is a probability of the reporters' gallery in the House of Commons undergoing reconstruction and enlargement. A select committee on Parliamentary reporting has been sitting for some time, and it is stated that the committee have just decided upon a recommendation to the effect that provincial newspapers prepared to give an independent report of the proceedings ought to be represented in the reporters' gallery. Should this recommendation be adopted by the House, a considerable enlargement of the "gallery" will be absolutely necessary, as although the admission to it is at present confined almost exclusively to the representatives of the metropolitan daily press, the space is inconveniently small and limited. The select committee of the House are said to have adjourned for a fortnight in order that the architect may have time to report upon the necessary alterations.

## THE PORTSMOUTH, GOSPORT, AND ISLE OF WIGHT BUILDERS' BENEVOLENT ASSOCIATION.

THE annual dinner in connexion with this Association was held on Tuesday evening, at the Railway Hotel, Portsmouth. The chair was occupied by Mr. W. Pink, ex-mayor of Portsmouth, and there were many gentlemen connected with the trade, holding good positions in the borough and county and in the Isle of Wight, present, among whom were Messrs. T. Bailey, H. P. Foster, C. Light, W. Gunnell, H. Moody, C. Whitcombe, Bainton Cousens, T. C. Cooper, Farminer, Roberts, Burbidge, H. Evans, Winter, Slade, Closeley, Lewis, Hicks, Basket, Greswell, Quick, C. Harding, Adams, A. H. Ford, E. J. Smith, R. H. Bone, Kerwood, Earwicker, H. Harding, Moody, Evans, J. Street (secretary), and others.

The Association, which is composed of employers of labour connected with the building trade of Portsmouth, South Hants, and the Isle of Wight, was instituted in 1877, at the suggestion of the then Mayor of Portsmouth, who continues to take the greatest interest in its welfare. The object of the Association is to relieve necessitous members who may be incapacitated for business through infirmity or other inevitable calamity, and also necessitous widows of deceased members, by granting yearly pensions or annuities not exceeding 20*l*. Nearly the whole of the master builders of the borough of Portsmouth are members of the Association, and its ranks are being rapidly strengthened by the joining of numbers of master builders of the district.

On the removal of the cloth, the customary toasts were given and duly responded to.

Mr. H. P. Foster, architect of London, one of the vice-presidents of the Society, proposed the toast of the evening, "Success to the Association," and challenged any member to a contest with him as to obtaining the highest amount of subscriptions before the next meeting, the loser to contribute 3*l*. 3s. to the funds. He was quite sure that when the objects of the Association were better known among the members of the trade, it would be very strongly supported, and he was therefore very glad indeed to find that the directors had determined to issue a prospectus setting forth the objects of the Association. Mr. C. Right, one of the directors, responded, and in the course of his observations, dwelt upon the importance of the members of the trade banding themselves together for the purpose of helping each other in times of sickness.

Other toasts, principally of a complimentary character, followed, and the proceedings of a very satisfactory gathering terminated.

## THE NEW SEWERAGE DISTRICTS, RIO DE JANEIRO.

THE works of the fifth district of the Rio drainage have been officially inaugurated.

Engines pump the sewage into the mixing cylinders, where the different chemicals, lime, sulphate of alumina, and charcoal, are added and incorporated with the sewage by means of iron stirrers. From the cylinders the sewage passes into the precipitating-tanks, where the solid matter is deposited, and, after a short period of rest, is drawn off by sluices and passes through an upward filter, clean and bright, into the bay.

The precipitating-tanks are three in number, each 100 ft. long, 14 ft. wide, and 8 ft. deep, constructed of iron, with flues below for the purpose of drying the sewage deposit by the spare heat from the boilers. A tramway is fixed on the top of the tanks and continued out to sea, with a steam crane and iron buckets for raising the dried deposit out of the tanks, whence it is conveyed in small iron trucks to barges for carrying away.

The system, with some slight modifications, is the same as that which was adopted for the drainage of the three original districts of the city, and which has been working successfully for some years past.

The rain sewer in each district is 4 ft. in diameter, continued by egg-shaped sewers 3 ft. 9 in. by 2 ft. 6 in., with barrel sewers and stoneware pipe sewers in the side streets. At each of the new outlet works there are duplicate high-pressure horizontal engines of 20-horse power, provided by Messrs. James Watt & Co., of Soho, with three Cornish boilers and duplicate centrifugal pumps.

The chimneys are carried up to a height of 146 ft. above the level of the wharf, that at St. Christovao on a foundation of piles and concrete, and that at Botafogo from the top of the solid rock. The works have been designed by Messrs. Gotto & Beesley, engineers-in-chief of the company, and have been carried out under the personal superintendence of Mr. Beesley, assisted by Mr. J. H. Whittle and a numerous staff. The contractor for the whole of the works is Mr. John Dixon, of London, who has been represented by Mr. E. E. Benest, assisted by Mr. Clement Wilmot, Mr. Rodiger, and a large personal. The estimated cost of the works for the new districts is 300,000*l*.

## ROADS.

IT is a misery to drive on the Victoria Embankment just now, the state of the road is so bad. It seems but a short time either since the steam roller was at work there. Roads everywhere seem to get out of order more rapidly than was the case formerly. What are the statistics as to the results of the use of the steam roller? Will some of the town surveyors give us a few positive facts thereanent. Looking to the wood pavement, part of that in Piccadilly is approaching the character of the Russian "corduroy" roads (formed by laying unsquared trunks of trees side by side transversely), and jolts one to pieces in passing over it. This road question in London is becoming more and more important.

**Woods and Forests.**—The abstract accounts of Woods, Forests, and Land revenues for the year ending March 31, 1878, have been issued. The capital account of the land revenue showed that at the commencement of the year there was a cash balance of 43,244*l*. The sales of stock brought in nearly 250,000*l*., and the other receipts brought up the total to 384,300*l*. The expenditure included 270,133*l*. for purchases of estates, and after defraying other payments there remained as balances at the end of the year 51,148*l*. odd, and 15,320*l*. stock and securities. The account of the income of the land revenue shows that, including the balances brought forward, the total receipts were 537,029*l*., of which 456,489*l*. were derived from land revenue (principally from Crown rents); 5,978*l*. from Windsor parks and woods; and 28,352*l*. from the royal forests and woodlands. The land revenue expenditure was 39,817*l*.; the expenditure in Windsor parks and woods, 26,969*l*.; and on royal forests and woodlands, 20,302*l*. A sum of 410,000*l*. was paid over to the Exchequer as surplus income, and there was a net cash balance at the end of the year of 39,940*l*.

## HEAVY PENALTY UNDER THE BUILDING ACT.

DISTRICT SURVEYOR FOR EAST HACKNEY (NORTH) *v.* HENRY SHIPP.

THIS case was heard at Worship-street Police Court, on the 6th of March, 1879, before Mr. Bushby. On the 9th of March, 1878, an order had been made for the defendant within one month to amend certain irregularities to four dwellings, Lockhurst-street, Clapton Park, but on the 19th of February, 1879, the order had not been complied with.

This was proved by the district surveyor, and the defendant was fined 100*l*., having been previously fined 56*l*. 0s. 6d. in respect of the same matter.

## CLAIM FOR "EXTRAS."

BINGHAM *v.* REEVES.

THIS case, arising out of a building contract, was before the Master of the Rolls last week.

The plaintiff was a builder, of Headcorn, and the defendant was an auctioneer, of Ashford. It appeared that some years since Mr. Reeves became the owner of an ancient property in the middle-row of High-street. He determined to rebuild it, and employed Mr. Baldwin Pyke, of Ashford, architect, to prepare plans. The building work was put out to tender, and the lowest tender was accepted, which was that of Mr. Bingham, the amount being 743*l*. A good deal of work was done by the builder outside the contract, and it was this extra work which gave rise to the litigation. Mr. Reeves had paid over in the course of the work sums amounting to 775*l*., and he disputed the charges made above that sum, alleging that the work was done without his orders, and that it came to less money. The action was at length brought for 869*l*. The defendant paid into Court 400*l*.

The case was about to be referred to a Master in Chancery for argument and evidence, when the defendant's counsel consented to a verdict for the amount claimed, and also to pay the plaintiff's taxed costs.

## WATER SUPPLY.

*Margate.*—The Margate Town Council, on the 25th ult., decided to purchase the Water Company's property, and to take the supply into their own hands. The sum agreed upon as the value to be paid for the acquisition is 59,000*l*.

*London.*—At a meeting of delegates from the various vestries and local Boards of the metropolis, held last week at St. Martin's Vestry-hall, under the presidency of Mr. Churchwarden Watherston, for the purpose of considering the metropolitan water supply, the following resolution was proposed:—"That whereas great complaints have for some time past been expressed in the various localities in the metropolis supplied by the water companies with regard to the increase of the water-rates without apparent justification, it behoves the consumers to institute inquiry and collect information, with a view to obtain the means of ensuring the adjustment of the burden." In the discussion which followed, the meter system for the supply and charge of water was advocated. Several of the delegates condemned the principle of charging according to the rateable value of the property, and it was suggested that a deputation should wait upon the Home Secretary, with a view of asking him to take the matter in hand as a great public duty, and independently of the Metropolitan Board of Works. The motion was seconded and carried unanimously. It was also resolved that, seeing that certain inequalities prevail, not only in the pound rate of charge, but also in the various incidents, viz., the graduated scale charges for baths, water-closets, high service, and other matters; and that by a return of the Metropolitan Board of Works, the rateable value of the metropolitan parishes, which in 1856 was 11,283,663*l*., was in 1876 increased to more than double that sum, namely, 33,111,313*l*., which showed that the income of the water companies must have enormously increased in the interval. "This meeting is of opinion that it is desirable that each of the vestries and district Boards should obtain a copy of the Act of the particular water company which rates their parish or district Board, in order to ascertain the powers conferred upon the company for the purpose; and that such vestries or district Boards should obtain from some of their chief consumers information showing in what way those powers are exercised, as to annual value and otherwise, and what have been the nature and relative amount of any late increase in the rates; and that such information as early as possible be forwarded to St. Martin's Vestry-hall." The delegates present were then formed into a committee to carry out the object in view.

## OBITUARY.

*Mr. R. J. King.*—Mr. Richard John King, an antiquary and voluminous and pleasant writer on ancient religious foundations, folk-lore, &c., died at Crediton on the 10th ult. He was the author of the six volumes of "Hand-books to the Cathedrals of England," published by Mr. Murray during the years 1861-69. The parts relating to Gloucester, Hereford, and Worcester were published in a separate volume under the title of the "Three Choirs," and in 1873 he published a similar volume on "The Cathedrals of Wales." Many of Mr. Murray's County Hand-books were also written by him.

## OLD LONDON.

THE laborious and useful volume of Mr. Parton, 1821, descriptive of the parish of St. Giles-in-the-Fields, contains, besides engravings of tokens, seals, and autographs, a plan of this parish,—*circiter* A.D. 1250,—which shows clearly Tyburn-road, now Oxford-street, with the gallows, subsequently the pound, at the east end. Great Russell-street, leading to Red Lion Fields, and the space between, north of High-street, consisting of the Pittance Croft, land of W. Russell; Blemundsbury, and Hospital Lands, with buildings extending eastward to the north of Little Turnstile in Holborn. Houses are seen on the north side of Broad-street and Holborn with a rivulet behind them, extending from Great Russell-street, west end, to the Hospital. North-west of this street is a large close with a mansion, bounded on the west by Tottenham-court-road. On the south-west side of High-street, a triangular plot contained the hospital of St. Giles, and below, separated by what is now Denmark-street, another plot is shown, bounded on the south by Castle-street, which runs from St. Martin's-lane to Drury-lane. Various plots and houses are shown as Campo de Aldewich, &c., between Drury-lane, and Campum Templariorum, or "Fikate's Fields," a large square, now Lincoln's Inn-fields. In Holborn, opposite Drury-lane, a stone cross is seen. Castle-street is now Long Acre, and the site of Great Queen-street is shown in this plan. Plan 2 shows this parish, A.D. 1570, with its churches, 1631, 1734; and it includes the Convent-garden wall, extending from St. Martin's-lane to Drury-lane. North of Holborn Southampton House is seen on the site of the north side of Bloomsbury-square. South of a street, now Monmouth-street, appear Cock and Pye-fields, now Seven Dials. This plan seems taken from Aggas, 1560, and Hogenberg, 1574. Drury House is seen at the lower end of the lane, and a few houses appear at the upper end: also on the other side of Broad-street, and opposite to "Fickett's-fields" on the north side of Holborn. Plan 3 denotes the boundaries of St. Giles's parish, *circiter* A.D. 1300. This plan extends from Gray's-inn-lane, opposite the site of the Old Temple, to Tyburn-street, and southward to St. Martin's Churchyard. Red Lion and Gray's-inn fields occupy the space from Gray's-inn-lane to Blemundsbury. Eastward of "Fikattesfeld," which extends southward to the Strand, the Blackfriars, now Lincoln's Inn, and the Cotterell-garden or Coneygarth, appear, now New-square, and a road is seen which runs from Great Turnstile to the Strand. An oblong slip, John Herlirum's garden, is now occupied by Chichester-rents, bounded eastward by Chancellor's-lane or Newe-street, Serjeants' Inn, and the Rolls, being seen below, with Clifford's Inn and St. Dunstan's Church eastward of Barram Novi Templi.

There are views, also, in this volume of the Maidenhead Inn, in Dyot-street, which flourished in the reign of Charles II., and of Totten or Totnam Hall, the residence of William de Tottenhall, in the reign of Henry III. It was known subsequently as the Adam and Eve public-house, at the north-west angle formed by the New-road and the Hampstead-road. I find also views of Brownlow, Dyot, and Thanet houses, as these appeared sixty years since, the latter being in Great Russell-street. Newcastle House, at the north-west corner of Lincoln's Inn-fields and Great Queen-street, A.D. 1686, is engraved at p. 249; and several houses situate in Great Queen-street, at p. 250. These are mentioned by Pennant ("London," p. 149), and in Evelyn's "Diary." St. Giles's Hospital was founded by Queen Matilda for forty lepers, in 1101, and between A.D. 1166 and 1189. Henry II. granted a charter in its favour. The name of St. Giles-in-the-Fields, to distinguish this church or hospital from St. Giles of Cripplegate, &c., was applied originally in the deed of gift of the hospital by Henry VIII. to Lord Lisle. Stowe stated, 1595, "On the High-street, Holborn, have ye many fair houses builded,—lodgings for gentlemen, inns for travellers, and such like, up almost to St. Giles-in-the-Fields."—Survey, ed. 1595. The plan at p. 108, in Parton's volume shows modern St. Giles, A.D. 1815, before recent alterations, and the destruction of The Rookery and Aldewych Highway or Drury-lane, may be derived from Saxon *Ald*, old, and *Wych*, a village, hence Wych-street, at the south-east end of Via de Aldewych. A Mr. Weedon, barrister of Lincoln's Inn in 1698, issued plans for the building of a beautiful range of buildings, to form an eastern row of houses in Lincoln's Inn-fields, with official chambers, &c., being preferable to the old black wall, and profitable for its rent. The plans included a chapel in the centre of the square, with waterworks at each corner. But, as I stated in the *Builder*, vol. xxxvi., No. 1865, not until 1735,—8 ann. Geo. II.,—was there any inclosure here. In the *Grub-street Journal*, I find this paragraph, viz.:—"Yesterday [the 10th of June, 1736, old style] they began to plough Lincoln's Inn Fields in order to raise the ground and make it fit for the walks, &c., and the said square being almost railed up with iron rails, several workmen are ordered to begin on the basin next week." Plan 3, p. 161, includes Maypole-lane at the bottom of Drury-lane, and a cross in the Strand, below. C. C.

## "ART FOR ART."

SIR,—My attacks, if my arguments deserve so strong an epithet, are generally directed against what I conceive to be error, and not against persons. I am tolerably free from malice, and I scrupulously avoid naming names if that can possibly be avoided.

Whenever writers are rash enough to leave the highway of common sense for the bye-ways of rhapsody, they are sure to follow these misleadings into the slough of inconsistency and error. Your most recent correspondent on "Art for Art" follows his leader, and therefore soon flounders in misapprehensions and misconceptions. Let him logically carry his premisses to their legitimate conclusions. He, like other rhapsodists, is fond of alluding to the Divinity in his writing, as if he were His by the laying on of hands. Genius with the enthusiasts is always *divine*. Let us grant them that it is, and what must be the logical conclusion? Why this: that genius is most genius when it is most God-like. Now, sir, is it more God-like, according to our human apprehensions, to do things with conscious foreknowledge, or with unconscious instinct, like brute beasts? Does the Almighty *abandon himself unconsciously* to his work? Need I pause for a reply?

The Liverpool lecturer, however, gave expression, if your report be correct, to two opposite and contradictory opinions. In one place he is for conscious, and in another for unconscious, well-doing. I only noted the inconsistency; and I was then, as I am now, ready to give him credit for holding the more sensible doctrine of the two. I can also admire his chivalrous defence of the artist of his election. I am only at issue with him as to his choice of weapon. Sophistry is but a weak lance at best, and one which is sure to be shivered at the first tilt against the breastplate of Truth.

"ART FOR GOOD."

**The Artisans and Labourers' Dwellings Improvement Act.**—At the inquiry at the office of the Westminster District Board of Works into the Great Peter-street (Westminster) improvement scheme of the Metropolitan Board of Works, Mr. Biron, for the Board of Works, stated that the area it was proposed to deal with was bounded by Great Peter-street, by St. Matthew-street, by Rochester-buildings, and by St. Mary's School. It was proposed to erect in the place of the buildings now covering the site a block facing Great Peter-street, six stories in height. There would be accommodation for 180 persons, there being thirty tenements of one room, thirty others of two rooms, or ninety rooms in all. With regard to the expense, the cost of the clearance was set down as 11,000*l.*, and the site when cleared it was calculated would be worth 3,500*l.*, leaving a net cost of 7,500*l.* to be borne by the Board.

## THE STREETS AND SNOW.

SIR,—I noticed in your number for the 1st. the remarks from the editor of the *Fireman* respecting means of melting snow. I saw the apparatus he refers to, but think the best and most perfect method is that adopted by the City authorities, and which they have had in use, more or less, for some time past, in Fore-street.

I am not acquainted with the construction of the apparatus, which I have ascertained "is heated by gas and worked by one man," but the plan is to open one of the sewer entrance-flaps in the pavement, down which the snow is discharged, "being carted from the different streets," and apparently dissolved and allowed to run into the sewer.

I feel certain that if a sufficient number of these arrangements had been ready for use, we need not have had the City streets in the disgraceful state they were after the last fall of snow, which certainly was heavy, but of a very short duration. PEDESTRIAN.

## FROST AND MORTAR.

SIR,—Referring to the letter from "Contractor," in your issue of the 2nd ult., I also should feel obliged if some gentleman would kindly inform me of any test case on this subject, as Portland cement rendering on outside work, which I had executed in October and November last, is now coming off in large pieces. The concrete covering the slope of excavation, put on in October, is also badly cracked, the crack extending from the top to the bottom of the slope (about 25 ft.). The maintenance of the work still lies with the contractor. Is he therefore bound to repair all damage, no matter though that damage was not caused through bad material or workmanship? C. E.

## WESTMINSTER AND PIMLICO INDUSTRIAL EXHIBITION.

SIR,—The Committee of this Exhibition have received a handsome offer from Mr. T. Christy, F.L.S., and the proprietors of the *Live Stock Journal*, of extra prizes to exhibitors of the best designs for conveying live poultry and eggs. There are probably many other gentlemen among our leading employers of labour who would be glad of such an opportunity as will be afforded by the coming exhibition to encourage skill in design and excellence of workmanship in various branches of handicraft, by also offering special prizes. Perhaps some of the City companies might see their way to do the same. Our Committee would be glad to hear from such persons, and to make their offers widely known as soon as possible.

H. E. FOX, Chairman of Committee of the Industrial Exhibition.

70, Warwick-square.

## SCHOOLS OF ART.

*Manchester.*—The annual meeting of the friends and supporters of the Manchester School of Art, and the distribution of prizes to the successful students in the examination previously held, took place on the 26th ult., Mr. F. W. Grafton, presiding. The report of the committee submitted stated that the work of the school has been well maintained. The committee observe with regret that the income of the school is again less than its current expenditure. To maintain it in efficiency they hope to be aided by additional subscriptions, to restore the balance of the annual financial statement. As a valuable contribution towards the permanent endowment of the institution, with means to supplement the fees from students, the committee desire to record their high appreciation of the liberality of Sir Joseph Whitworth, bart., who has transferred to trustees, on behalf of the school, shares of the value of 1,000*l.* in the Whitworth Land Company, Limited. Since the last annual meeting the building committee have been much occupied with forming the art-treasures exhibition, settling with the architect (Mr. George T. Redmayne) the final design for the new building, and continuing the canvass for subscriptions. In the last report the general design of the new building for the school of art was referred to; the committee, however, regret to find that the continued depression of the trade of the district has interfered with the provision of the necessary funds to such an extent that they have thought it advisable to reconsider the scheme, and have determined to erect a building which, though architecturally less ambitious, will contain all the accommodation essential for the school, as well as the gallery for an art museum connected therewith, and this they hope to commence during the spring. With respect to the building fund, the amount subscribed now amounts to 16,722*l.* 10s.

*Southwark.*—On the 28th ult. the first general distribution of prizes to the students of the Southwark, Greenwich, Stepney, Nine Elms, and Woolwich Science Classes took place at the

St. Olave's Grammar School, Southwark. These classes, conducted by Mr. Parton Parry, are in connexion with the Science and Art Department at South Kensington, and the course of instruction includes geometrical, machine, architectural, freehand, model, and perspective drawing, together with, speaking generally, all branches of pictorial art which have a bearing on skilled mechanical industry. The prizes were distributed by Professor Thorold Rogers.

## WOOD-PAVING IN CHELSEA.

THE Chelsea Vestry have decided to expend a large sum in laying down wood pavement along the main thoroughfare within their district. At their last meeting, the Committee of Works recommended that the Metropolitan Board of Works be asked to sanction a loan of 20,000*l.* for wood-paving, commencing at the North-end of Sloane-street, and ending at Park-walk, Chelsea, including Sloane-square. The adoption of the recommendation of the committee having been moved and seconded, the proposition was, to a certain extent, discussed, Mr. Cole, one of the members, observing that Sloane-street had only recently been put in repair, and the roadway would last a couple of years. He moved, as an amendment, that the Vestry borrow 10,000*l.* to lay down wood-pavement in such parts of the parish where the roads require thorough repair. The amendment was negatived, and the motion for power to borrow 20,000*l.* to lay down wood-pavement along Sloane-street, as recommended by the committee, was carried by a large majority.

## SEWAGE DISPOSAL.

*Canterbury.*—At a meeting of the General Purposes Committee of the Town Council on the 26th ult., the surveyor (Mr. Hall) presented a report upon his interview with Mr. Rawlinson, C.B., who had looked over Mr. Hall's plans for disposing of the sewage, and had approved of the modified plan for irrigation which was adopted at a former meeting of the committee a short time ago. The committee now resolved, after considering Mr. Rawlinson's report, to recommend the Council to carry out the plan in question.

*Prestwich.*—On the 27th ult. Colonel Ponsonby Cox, R.E., attended at the Local Board offices, Prestwich, to hold an inquiry respecting an application of the Board for powers to put in force the Lands Clauses Consolidation Acts with reference to certain land required by them for the purification of the sewage of the district. The trustees of the late Mr. T. Drinkwater, whose property it was proposed to utilise for the purpose of the sewage works, were represented by Mr. Kirkman. The plans of the Board's scheme were laid before the inspector. Mr. Kirkman said that the objection of the trustees was that the scheme would, by a road, cut their estate in two, which was very objectionable. They suggested two other sites, one near Messrs. Buckley's works, and the other near Bradley Fold. The inspector said he was bound to consider the site stated by the Local Authority, and unless there was some fatal objection he would have to recommend it to the Local Government Board, so that the provisional order could be issued.

## CHURCH-BUILDING NEWS.

*Foord.*—A new church at Foord, an outstanding district of the parish of Christ Church, Folkestone, was consecrated on February 3, by the Bishop of Dover. The church which, when complete, will consist of nave, aisles, chancel, organ-chamber and vestries, tower and spire, is built in the Early Decorated style, the material being local ragstone laid in random courses, with Box-ground Bath-stone dressings, the internal walls being lined with rich-coloured red brickwork, coursed with grey. The roofs are of fir, left clean without stain or varnish. The windows are glazed with varied-tinted cathedral glass, and are provided with ventilating casements. The walls are built hollow. The seating is of red deal, varnished only. The font is of Caen stone, with richly-carved and moulded caps and Peterhead granite shafts on a base of Robinhood stone. The church is lighted by gas-jets round the caps of the arcades. The heating with hot air has been carried out by Mr. John Grundy, of Tyldesley, near Manchester. The whole of the works have been carried out from the designs and under the superintendence of Mr. A. Rowland Barker, architect, London; Mr. Burgess Reeves, architect, Folkestone, acting as clerk of works. The works have been carried out by Messrs. R. & D. Baker, of Folkestone, at a cost of about 3,500*l.*

*Wensham.*—The parish church of Wensham, near Chard, has just been re-opened for divine worship, after undergoing repairs and alterations. The work has been carried out by workmen in the employ of Viscount Portman, who have been paid out of the fund subscribed for the purpose. Mr. W. Hodder, "foreman and architect" (!) to Lord Portman, superintended the work.

*Staverton.*—Under the superintendence and from the designs of Mr. Ewan Christian, architect to the Ecclesiastical Commissioners, the chancel of the parish church of Staverton, near Totnes, has been restored. Its roof, quite new, is of the local wagon-shape, and of pitch pine. Its timbers are richly decorated in colour, the ribs and purlins painted, and the carved bosses at the intersections gilded. Over the chancel proper the panelled boarding is varnished only, but within the sanctuary the ground is of a beautiful blue, spangled with golden stars. The roof springs from wall-plates, in which are carved pateræ, and at the western end springs from corbels of stone, upon which are sculptured representations of angels in attitudes of adoration. The floors are laid with Minton's encaustic tiles; and by four steps of Robin Hood stone the ascent is made to the altar. The stalls are of English oak, having carved poppy-head terminations. The walls of the chancel are plastered and stuccoed a quiet colour. The reredos is in the main of moulded and carved stone, having a central compartment of wood highly decorated. The stone and wood carving and sculpture have been executed by Mr. Harry Hems, of Exeter; and Mr. Chudleigh, of Newton Abbot, is the contractor for the restoration generally.

*Manchester.*—St. John's Church, Deansgate, Manchester, has been re-opened, after restoration. It is one of the old City churches. A clean sweep has been made of the boxed-up pews, three-decker pulpit, desks, and most of the old fittings on the ground floor. The design included a new chancel, keeping the present sanctuary as its western bay, and adding to other bays to the east. The new chancel, carried out eastwards, is, however, not yet undertaken, from the want of sufficient funds, and for other reasons. An inner chancel, or "chorus cantorum," has, however, been formed within the existing walls. From the floor of the old shallow chancel, or sanctuary, a broad platform has been raised, towards the west, about 15 in. above the nave floor level. Surrounding this on three sides (save an opening on the west), is a screen of oak panelling surmounted by a railing of light open wrought-iron work. North and south of the chancel are ranged carved oak stalls and subsellæ with two detached prayer-desks of corresponding design. The fronts of the boys' desks and the prayer-desks, and some of the stall-ends, are enriched with elaborate tracery. The whole of the choir fittings are of oak. The four principal stall-ends terminate in pedestals on which stand carved figures of the four Evangelists, facing west. On the ends of the boys' desks are figures of angels kneeling, each bearing a scroll with words indicative of the Evangelist above. The Communion-table (the gift of Mr. Richard Hanby) is of oak, open-framed. It stands upon a double foot-pace, which has curbs of fine-grained stone, and is inlaid at the top with encaustic tiles. Above the oak panelling the walls of the sanctuary are decorated in colour and gold, with a banded diaper and four vesica-shaped panels, on which are inscribed the Decalogue, the Lord's Prayer, and the Creed. The plaster-groined ceiling of the apse is also decorated in colour and gold, and is powdered with stars. The walls and ceiling of the body of the church require, and are to have, a corresponding, but far less elaborate, treatment as soon as the funds permit. The brass lectern, which stands about 7 ft. high, and is approached by a flight of three steps, will be temporarily used as the pulpit. This lectern was specially designed and manufactured for St. John's Church by Mr. Skidmore, of Coventry. The font, the work and the gift in 1876 of Mr. William Goldstraw, has been removed from its position in the central aisle to a more convenient site near the north-west door. Low open benches have been provided for the congregation, and for the most part these benches have been formed out of the old oak pews.

*Paddock.*—All Saints' Church, Paddock, has been reopened, after alterations and additions. The old vestries and east walls have been entirely removed, a new chancel and vestries built, and the south-west porch pulled down and enlarged. These additions have been designed in the style predominant about the reign of Edward I. (A.D. 1300), and architecturally classfied as late or transition "Early English." The planning of the additions is as follows:—A large chancel arch has been formed in the east wall of the church, and beyond this a new chancel and vestry built, the internal dimensions of the chancel being 30 ft. long by 22 ft. wide, and on the precentor's side two vestries are placed, one for the clergy and the other for the choir, communicating with and adjoining each other. On the opposite side of the chancel is the organ-chamber or chapel. Double arches in pairs are formed between the chapels and the chancel, and these arches are filled in with pitch pine polished screens about 8 ft. high, leaving the upper portion of the arch openings entirely open. The floor of the chancel is raised two steps from the level of the church floor, and here are placed the choir-stalls, wrought out of English oak, and the stall-ends richly carved, the precentor's desk being all open tracery carved panel work, and the fronts of the desk screens to the choir-stalls on each side are carved and pierced to match; the key-boards (or manuals) of the organ are placed in the north chapel screen, so that the organist sits at his instrument along with the choir. Over the altar-table is a stone "super-altar" enriched in face with seven cross-croslets, and this stone shelf supports the reredos, executed in several different coloured marbles. The execution of this work was entrusted to Mr. Brooke, marble mason. The east window is filled in with painted glass, which is the gift of Mrs. Joseph Crosland, executed by Messrs. Lavers, Barraud, & Westlake. The whole of the nave has been reseated with pitch-pine benches, with moulded panelled stall ends. These panels of stall ends have drapery carvings, and the front benches have pierced panelling to correspond with the choir-stalls and precentor's desk. Each stall is fitted up with umbrella-stands, supplied by Messrs. Heaps & Co. Fresh air is supplied by means of "Tobin's" patent tubes let into the walls; these were supplied and fitted by Messrs. Harding, of Leeds. The warming, lighting, and tiling in the nave of the church, the organ, removal of the font, reseating the gallery, cushions and hassocks, have been subscribed for by the congregation and the friends of the church, and cost about 1,200*l.* The new chancel, vestries, and all other alterations and additions are entirely the gift of Mr. Joseph Crosland, J.P., and have cost about 3,500*l.* The whole of the works have been designed and carried out under the superintendence of Messrs. John Kirk & Sons, architects, Huddersfield and Dewsbury, by the following contractors:—Messrs. A. Graham & Sons, masons; Mr. James Christie, joiner; Mr. Geo. Garton, plumber; Mr. Jewitt, plasterer; Messrs. Goodwin, slaters; Mr. R. Heaton, painter; and the heating apparatus by Messrs. W. & S. Thornton, all of Huddersfield.

## DISSENTING CHURCH BUILDING NEWS.

*Pewsey.*—On the 23rd ult. a new Primitive Methodist chapel, capable of seating 130 persons, was opened in this village. The building has been erected from designs prepared by Mr. W. Baverstock, architect, Marlborough.

*Manningham.*—The foundation stone of a new Primitive Methodist chapel at Heaton-road, Manningham, has been laid by Mr. Angus Holden, mayor of Bradford. The edifice will be erected in what is known as the Lombardic style of architecture, from designs by Mr. Thomas Howdill, of Leeds, and the estimated cost is 4,000*l.* When completed, the building will provide accommodation for 1,000 worshippers.

*Edinburgh.*—For some time past the Cowgate Free Church congregation have been worshipping in the Gaiety Theatre, Chambers-street, in consequence of their own church being badly lighted and ventilated, and quite insufficient for their wants. They have, however, secured from the City Improvement Trustees, a piece of ground lying between their

church and Guthrie-street, and upon this ground the church is to be extended, and offices erected according to the plans prepared by Messrs. R. Thornton Shiells & Thomson, architects. These plans show the old south gable to be removed, and the church extended to accommodate 130 extra sitters. There are two halls, vestry, deacons' room, and other offices included in the improvements, besides improved means of entrance and exit to the church. The work is now proceeding.

## VARIORUM.

THE "Practical Cabinet-maker, being a Collection of Working Drawings, with Explanatory Notes, by a Working Man" (Wyman & Sons), will be found very useful by young workmen. It goes fully into the subjects of which it treats, is clearly written and illustrated, and even in respect of art the designs are very much better than the title gives us reason to expect. There is a good common-sense uprightness and straightforwardness about them which deserve recognition. The furniture made well after these patterns would last.——"The City of London Directory for 1879" maintains its right to the good opinion we have always expressed of it. The section devoted to the public companies, of which particulars of every company in the City of London are recorded; and the Livery Companies' Guide, giving the officers of the City Guilds, with the history of their halls, charters, arms, charities, and schools, are especially interesting; and the volume includes a new coloured map on a large scale, expressly prepared, and showing clearly every street, turning, railway, with the boundaries of each ward and parish, together with latest street improvements.——As preparing for publication, in one vol. octavo, with numerous illustrations, we hear of "A Popular Introduction to the History of Greek and Roman Sculpture, designed to Promote the Knowledge and Appreciation of the Remains of Ancient Art," by Walter Copland Perry. This work is designed to facilitate the study of a very important element in the civilisation of ancient Greece, and to promote the knowledge and appreciation of the remains of ancient art. The author has undertaken this task in connexion with the scheme for the formation of a Museum of Casts from the Antique, which Lord Beaconsfield, in the House of Lords, promised to take into favourable consideration during the last recess. ——The *Victoria Magazine* is brightened up by a serial story from the pen of Emilia Aylmer Blake, "My Only Love." It shows much knowledge of the human heart, and holds closely the attention of the reader.——Another Dictionary! We are informed that Messrs. Griffith & Farran will publish, with the April magazines, Part I. of "A Universal Dictionary for Architects, Civil Engineers, Surveyors, Sculptors, Archæologists, Artists, Clerks of Works, and Building Artificers," containing a copious vocabulary and practical explanation of the usual terms current in the architectural profession and allied trades, with observations and illustrations, by Wyvill Jas. Christy.

## Miscellanea.

**Drainage in Dublin.**—At the monthly meeting of the Dublin Municipal Council on the 3rd inst., a letter was read from the Local Government Board in reference to the request of the Corporation that the Board should recommend a loan of 35,000*l.* to the Corporation for the purpose of completing the sewer works of the city. Before submitting the application to the Public Works Commissioners they were desirous to be enabled, in the first place, to satisfy the Commissioners, in writing, that the case falls within the provisions of sub-sections 1, 2, and 3 of the 238th section of the Public Health Act, 1878, and that the requirements of those sections had been observed. In the Annual Report of the Public Health Committee for the year ending 31st August, 1878, it was stated that the plans and specifications for the works termed "Urgent," upon which it was proposed to expend 15,443*l.*, could easily be ready by April next, and an examination and survey of the sewers "Not urgent" could be commenced as soon as the others were completed, and would be completed in five or six months. The letter was referred to the Public Health Committee to draft a suitable reply.

**The Royal Albert Hall.**—Arrangements are being made for the delivery here of a lecture by Mr. Preece on Electric Lighting. Wednesday, May 1, will be the date, and as the Society of Telegraph Engineers are kindly co-operating with the Council in endeavouring to obtain the exhibition of various systems, there is every reason to expect a very complete exposition, and a brilliant evening in more senses than one. Several entertainments have been arranged for. On the 13th, the Royal Albert Hall Choral Society gave a successful concert in honour of the Duke of Connaught's wedding; on (this) Saturday, 15th, the Royal Albert Hall Amateur Orchestral Society, under the presidency of H.R.H. the Duke of Edinburgh, will give their first concert for the season, with good assistants. On St. Patrick's day, the 17th, will be given a grand Irish Festival, with numerous singers. On the 19th there will be an entertainment and speeches in aid of the Home for Little Boys, near Farningham, and on the 19th, in the afternoon, an Opera Concert under the direction of Mr. William Carter.

**Worcester Dwellings Improvement and Land Company.**—The fourth general meeting of this company was held on the 28th ult. The report of the directors stated:—

"The dwellings comprising St. Alban's-square, and formerly known as the Worcester Model Dwellings, have been uniformly well let throughout the year, and the six freehold dwelling-houses situate in Lower-street-walk, Tallow-hill, which were purchased in the early part of the year, have been repaired, and much improved, and are now all let at an advance of rent. Additional land has been sold at Upper Mitton and former purchases completed. The Firs estate, situate close to the town of Bromyard, and containing about 18 acres of land eligible for building purposes, has been purchased during the year, and about one-half of it has been laid out in suitable lots, several of which have been sold, but as possession cannot be obtained until March, none of the purchases have yet been completed."

A dividend at the rate of 7½ per cent. per annum was declared.

**The National Gallery.**—In the House of Commons, Mr. Ritchie asked the First Commissioner of Works whether his attention had been called to the blistering of several of the paintings in the new rooms in the National Gallery; and whether he could state the cause, and what steps are being taken to prevent further injury. Mr. Gerard Noel said during the severe frost it was very difficult to obtain an even temperature in the large room of the National Gallery, and it was due to the overheating on one or two occasions that the blistering took place. The paintings affected had been removed to another room, and he was happy to say Mr. Burton had informed him that no irreparable damage had been done to the pictures.

**Value of Property in the City.**—On the 28th ult. the block of buildings in Fleet-street, near Chancery-lane, occupied by Messrs. Dunn & Duncan, stationers, was sold at the Auction Mart, Tokenhouse-yard, by Messrs. Farebrother, Ellis, Clarke, & Co., under an order of the Court of Chancery. The property is situated on the south side of Fleet-street, between the Law and General Insurance Office and Dick's Tavern, and occupies a ground area of 1,660 superficial feet, the buildings themselves being old and in a rather dilapidated state. The property is freehold. The biddings for the property were very spirited, commencing at 7,000*l.* It was eventually sold for 12,000*l.*, that being at the rate of about 8*l.* per foot.—*Metropolitan.*

**The Bradford Borough Surveyorship,**—At a meeting of the Street and Drainage Committee of the Bradford Corporation, a resolution was passed recommending to the Town Council the appointment of Mr. J. H. Cox as borough surveyor. There were eighty applications for the vacancy, which were ultimately reduced to seven. Mr. Cox at present holds the office of deputy surveyor to the Bradford Corporation. The final appointment of surveyor will probably not take place until April.

**Sir J. Whitworth at the late Paris Exhibition.**—Three *Grands Prix* and a Gold Medal were awarded to Sir Joseph Whitworth. Two of the former were for Whitworth's lathes, machine tools, measuring instruments, and screwing apparatus; and one *Grand Prix* was for fluid pressed steel, the principal exhibits of which were a cylinder lining, an air-vessel for torpedoes, and a hollow screw-propeller shaft.

**Royal Society.**—The President's *conversazione* will take place on Wednesday, April 30th. A reception was held on March 12th, and there will be another on April 2nd.

**Sir Philip Cunliffe Owen, C.B.,** Secretary of the British Royal Commission at the Paris Exhibition, was entertained at a dinner given in his honour, at Willis's Rooms, on Wednesday evening, and, in recognition of his services, he was presented with a testimonial consisting of an address illuminated and engraved on vellum and handsomely bound, a cheque for 3,500 guineas, and a diamond Maltese cross for Lady Cunliffe Owen.

**Pictures at Manchester.** — The special feature of Messrs. Agnew's tenth annual exhibition of pictures, just opened at their galleries, Exchange-street, is the appropriation of one room to works by Early English masters. Sir Joshua Reynolds, Romney, Opie, George Morland, Old Crome, Richard Wilson, and Sir A. W. Calcott are among the masters whose works are on view.

**The Free Library, Bradford,** and also the Liberal Club, have been fitted with Messrs. Robert Boyle & Son's patent self-acting air-pump ventilators, and we understand the ventilation is pronounced to be quite satisfactory.

**Female School of Art.** — H.R.H. the Princess Mary Adelaide will present the prizes, on Tuesday, March 18th, at the University of London, Burlington-gardens.

## TENDERS

Revised tenders for the erection of an infirmary at Notting-hill, for the Guardians of St. Marylebone. The whole of the works to be executed in two years. Messrs. H. Saxon Snell & Son, architects:—

| | |
|---|---|
| Mowlem & Co. | £117,343 0 0 |
| Braid & Co. | 116,850 0 0 |
| Lovatt | 115,760 0 0 |
| Perry & Co. | 115,000 0 0 |
| Cowland, Bros. | 113,915 0 0 |
| Crockett | 113,794 0 0 |
| Shaw | 110,875 0 0 |
| Wall Bros. (accepted) | 109,000 0 0 |
| Chappell | 108,860 0 0 |

For pulling down four cottages in Green-street, Bethnal-green, and erecting three houses and shops on the site, for Mr. E. Keymer. Mr. J. Harris, architect:—

| | |
|---|---|
| Kiddle & Sons | £1,495 0 0 |
| F. & F. J. Wood | 1,473 0 0 |
| Beal | 1,451 0 0 |
| Anley | 1,380 0 0 |
| Cox | 1,325 0 0 |
| Walker | 1,220 0 0 |
| Judd | 1,139 0 0 |
| Thorpe | 1,050 0 0 |
| Barrow | 1,019 0 0 |
| Seymour | 940 0 0 |
| Russell | 940 0 0 |

For Benacre Rectory, Suffolk. Mr. R. Makilwaine-Phipson, architect:—

| | |
|---|---|
| Cornish & Gaymer | £2,087 0 0 |
| Downing | 2,010 0 0 |
| Morris | 1,940 0 0 |
| Hawes | 1,820 0 0 |
| Grimwood (accepted) | 1,755 0 0 |

For South Cove Rectory, Suffolk. Mr. R. Makilwaine-Phipson, architect:—

| | |
|---|---|
| Cornish & Gaymer | £1,370 0 0 |
| Downing | 1,320 0 0 |
| Morris | 1,180 0 0 |
| Hawes | 1,180 0 0 |
| Grimwood (accepted) | 1,152 0 0 |

For four shops, The Grove, Stratford, E. Quantities supplied by Messrs. R. L. Curtis & Sons:—

| | |
|---|---|
| Hosking Bros. | £3,527 0 0 |
| Perry & Co. | 3,434 0 0 |
| North Bros. | 3,404 0 0 |
| Norton | 3,397 0 0 |
| Morter | 3,321 0 0 |
| Marr | 3,298 0 0 |

For drainage works for fifteen houses, Penton-place, Newington-butts, for the Rent Guarantee Society:—

| | |
|---|---|
| Ricketts | £146 0 0 |
| Wilson | 130 0 0 |
| Wookey | 120 0 0 |
| Frost & Co. (accepted) | 106 0 0 |

For the completion of seven houses, at Stoke Newington. Mr. Robert Blackmore, architect:—

| | |
|---|---|
| Uff | £1,355 0 0 |
| Minty | 863 0 0 |
| Niblett | 813 0 0 |
| Parker & Evans | 798 0 0 |
| Lane | 705 0 0 |
| Surridge | 655 0 0 |

For alterations and additions to a house at Kenley, near Caterham. Mr. Horace T. Bonner, architect:—

| | |
|---|---|
| Burman | £950 0 0 |
| Kirk | 835 0 0 |
| McCowan | 830 0 0 |
| Higgs | 797 0 0 |

For building factory and stabling at Ladywell, S.E. Mr. Horace T. Bonner, architect:—

| | |
|---|---|
| Somerville & Hill | £987 0 0 |
| Hart | 972 0 0 |
| Staines & Son | 936 0 0 |
| Burman | 910 0 0 |
| Kirk | 875 0 0 |
| Smeaton | 859 0 0 |
| Jerrard | 847 0 0 |

For new roads, sewers, &c., at West Hill, Hastings, for Mr. G. Clement and Mr. A. L. Sayer. Messrs. Cross & Wells and A. G. Colpoys, architects. Quantities by Messrs. Cross & Wells:—

| | |
|---|---|
| King | £1,400 0 0 |
| Longhurst | 1,312 0 0 |

For additions and alterations to "Hernelea," Lyme Regis. Messrs. Batterbury & Huxley, architects:—
Randall & Son (accepted) ..... £1,050 0 0

For alterations at the Grafton Arms, 21, Grafton-street, Fitzroy-square, for Mr. Thomas Butters. Mr. James Robert Furniss, architect:—

| | |
|---|---|
| Edgson | £410 0 0 |
| White | 396 0 0 |
| Anley | 387 0 0 |
| Homan | 374 0 0 |
| Bishop | 327 0 0 |
| Edgley (accepted) | 307 0 0 |

For the erection of warehouse, 5 and 6, Paternoster-row, for Mr. Walter Smith. Messrs. Taylor & Locke, architects:—

| | |
|---|---|
| Braid & Gwynne | £4,900 0 0 |
| Howard | 4,869 0 0 |
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